

ABSTRACT

Title of Dissertation: THE RELATIONSHIP BETWEEN CHANGES IN HIGH SCHOOL ENGLISH ACHIEVEMENT AND TEACHER PERCEPTIONS OF THE TEACHING AND LEARNING CONSTRUCTS DEFINED BY THE TELL MARYLAND SURVEY

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This quantitative research study uses path analysis to determine relationships between changes in high school English achievement and changes in teacher perceptions of teaching and learning constructs as defined by the Teaching, Empowering, Leading and Learning (TELL) Maryland Survey. Using individual western Maryland high schools as the unit of analysis, 2011 and 2013 English High School Assessment (HSA) results reported as percent proficient are correlated to 2011 and 2013 TELL Survey percent agreement of teacher perceptions about the constructs of sufficient time, teacher leadership, school leadership, professional development, and instructional practices and support, as defined by the TELL Survey. Much of the research literature concerning the constructs is descriptive and qualitative, rather than quantitative. This study focuses on perceptions of teachers rather than the direct effect of the constructs on teaching

and learning in high schools. The results did not accord with the volume of literature supporting the theoretical framework that sufficient time, teacher leadership, school leadership, professional development, and instructional practices and support are related to student achievement. The results demonstrate that there is a strong correlation between the HSA results in 2011 and 2013, and the same strong relationship between each of the constructs across those two years.

Importantly, teacher perceptions of each of the measures of climate are high, but among the broad phenomena of success, teachers report sufficient time as the lowest percent agreement among the constructs. Interestingly, there is a statistically significant relationship between student achievement on the English HSA in 2011 and teacher perceptions of both school leadership and instructional practices and support two years later in 2013.

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by

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Dedication

I dedicate this dissertation to my loving husband Sean, my son Jacob, and my daughter Rebekah. Thank you for allowing me to start and continue this journey. Your constant support meant giving up family time and each of you taking on additional roles to support the family. Without your dedication, I would have been unable to continue learning and working towards my lifelong dream of completing the requirements to earn the Degree of Doctor of Education. Thank you to Kathy and Bill, who served as surrogate parents to my family in my absence.

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Chapter One: Introduction

Background

School systems and high schools across the nation are searching for promising practices that result in improved student performance on federally driven state and local accountability measures, which include mastery of English as a primary focus. The strict sanctions of the *Elementary and Secondary Education Act*, referred to as the *No Child Left Behind Act of 2002* (NCLB), were superseded by the introduction of the competitive federal grant process for *Race to the Top* (RTTT) funding. The federal government's involvement in public education has turned to "incentives instead of sanctions to drive state reform" (McGuinn, 2011). Though there is considerable controversy regarding both punitive and incentive efforts to legislate public education, it is indisputable that schools are increasingly accountable to the public and to the government for improving student performance and for providing evidence that students who graduate from public schools are literate and prepared for college and careers.

Educational policies on a national, state, and local levels change rapidly, and at times conflicting practices are adopted in response to the pressures of increased accountability. The *No Child Left Behind Act* was signed into law to remedy a crisis in education, and it gave children in low-performing public schools options to choose better public schools. Of the 45 million high school seniors, according to US Secretary of Education Rod Paige, an estimated "10 million could not read at even a basic level; more than 25 million did not know even the basics of U.S. History; and of students in all high

school levels, more than 20 million could not do even basic math” (Heritage Foundation, 2000, p. vii).

Student success in American public high schools and specifically in English classrooms has seemingly stagnated. “According to a November 2010 NAEP report, scores for 12th graders saw only small increases: Between 2005 and 2009, average scores increased two points in reading” (Koebler, 2011). Reports like this stimulate public and political conversations and create the need for a response by state and local education departments. Current international comparisons are also providing impetus for educational policy changes. “The United States has substantial inequities in achievement across the country, and international surveys show that the performance gap between the most- and least-proficient students in the United States is among the highest of all OECD (Organisation for Economic Co-operation and Development) countries” (Kirsch et al., 2007).

With each release of international test scores, many education leaders assert that American students are unprepared to compete in the new global economy, largely because of U.S. schools' shortcomings in educating disadvantaged students. "Such conclusions are oversimplified, frequently exaggerated and misleading," said Rothstein, who is also senior fellow at the Chief Justice Earl Warren Institute of Law and Social Policy at the University of California – Berkeley School of Law (2013). “They ignore the complexity of test results and may lead policymakers to pursue inappropriate and even harmful reforms” (Rabinovitz, 2013). Among the challenges to the common public assumption that high school student achievement is stagnating, is recognizing the historical and evolving purpose of American high schools, which did not originally

include all students. Changes in compulsory attendance, as well as Individuals with Disabilities Education Act (IDEA) legislation mandated that all students be educated and assessed, and that schools be held accountable for student achievement. “As the country grew—and as legislators passed compulsory attendance laws—the number and diversity of students increased” (Guskey T. R., 1994). With this understanding, educational historians argue that in longitudinal studies the scores are not declining; they simply include students who were never accounted for in the past.

In a more immediate setting, the daily challenges of a high school principal include strategizing and organizing, systematizing and encouraging, informing and focusing the school community and its resources, so that all students can demonstrate achievement on mandated measures. While improvement is slow on a national level, it is also slow for Maryland high schools, and the increased focus on accountability has educators scrambling to meet state standards, which continue to rise. Administrators are looking for solutions, strategies, and approaches to help all students demonstrate mastery, and, most importantly, complete high school successfully in order to increase their chances of success beyond high school.

In order to graduate in Maryland, students must pass four required state assessments called the High School Assessments (HSA), in addition to earning four credits in English, three in science, math, and social studies, as well as others in foreign language, foundations of technology, fine arts, health, physical education, and electives for a total of 21 credits. Students must also meet the service learning, attendance, and local education agencies requirements (MSDE, Graduation Requirements, 2005). According to the Maryland State Department of Education, “The Maryland High School

Assessments (HSA) are tests that measure school and individual student progress toward Maryland's High School Core Learning Goals in English, Algebra/Data Analysis, Government and Biology. Passing the end-of-course HSA exams is a graduation requirement. Students take each test whenever they complete the course and as many times as necessary prior to graduation. The tests contain multiple-choice questions and questions requiring written responses. These questions are based on the content outlined in Maryland's Core Learning Goals” (HSA: High School Assessments, 2014).

One of the stumbling blocks for students is the successful completion of four English classes and the English HSA, typically administered after successfully completing tenth grade English. School systems and high schools, in particular, spend a great deal of time, human capital, and funding on remediation efforts to help students meet these graduation requirements. The problem of poor student achievement continues to compound in college. According to a *Maryland Higher Education Commission* report on the college performance of new Maryland high school graduates, 12 percent of the community college core students (those who took a college preparatory track in high school) needed remedial coursework in English (Student Outcome and Achievement Report, 2011). Fifteen percent of core students attending a Maryland four-year institution needed remedial math instruction. The additional cost to taxpayers for this remediation is \$90 million annually (Newgent, 2011).

Maryland's Reform

The State of Maryland has invested time and allocated strategic resources designed to support improved student performance in English. On August 24, 2010, the Maryland State Department of Education (MSDE) was awarded one of the federal

government's RTTT grants for a total of \$250 million over four years. This grant award required legislative changes and introduced significant impetus for improved student performance by including student growth measures in evaluations for teachers and principals.

Simultaneously, MSDE began the transition to the Common Core State Standards (CCSS), endorsing the concept of consistent learning goals across the nation. MSDE worked with a consortium of twenty-five (25) other states in the Partnership of Readiness for College and Careers (PARCC) to plan new assessments for implementation in 2014-2015.

Maryland has been a frontrunner in reform, bolstered by the organizational structure of twenty-four county school systems, because it has been able to implement change rapidly. The state of Maryland had been rated by *Education Week* as the number one (1) state public school system for four (4) consecutive years.

Maryland's 2012 ranking in "Quality Counts" is based on State education policies and student performance that reflect nearly two decades of work under recently-retired State Superintendents, Nancy S. Grasmick, and Dr. Sadusky to solidify the preK-12 curriculum; state accountability and standards; educator effectiveness; and work on school readiness, high school reform, and preparation for college and the workplace. (MSDE, *Four in a row for Maryland public schools*, 2012)

Dr. Grasmick's legacy in adopting sweeping reform and paving the way for Maryland's school systems to continue moving forward in school improvement has sustained the state's reform orientation. Initially, *The Bridge to Excellence in Public Schools Act* (BTE), passed by the General Assembly in 2002, established the legislative requirement

for the creation/submission of a five-year comprehensive master plan around the concept of fiscal responsibility, and for the first time school finance became directly linked to improving student learning.

In 2005, MGT of America, Inc. was selected by MSDE to assess outcomes of the increased funding through BTE. MGT's Final Report (Volume I) of "An Evaluation of the Effect of Increased State Aid to Local School Systems Through the Bridge to Excellence Act," completed in 2008, included several key findings.

Maryland educators perceive that the following practices are the most effective for improving achievement of all students in their schools:

- class periods or blocks of periods scheduled for academic enrichment or intervention,
- team strategic planning at the grade/subject level,
- math specialist in the school,
- use of student-level data for planning instruction,
- use of technology in instruction,
- targeted staff/professional development,
- data-based differentiation of instruction, and
- discussing instructional practice during team meetings (MGT of America, p.85 2008).

The study found that "proficiency levels statewide have improved dramatically for all students and for each of the student groups identified by No Child Left Behind, and some LSSs improved at a faster rate than others" (MGT of America, 2008). Not surprisingly, students in schools with a higher percentage of classes taught by highly

qualified teachers improved faster than those with lower percentages. The Executive Summary included several recommendations, which encouraged the State of Maryland to continue the master planning process and maintain funding, and to “continue and/or better support school administrators and their instructional staff to tailor educational best practices for the needs of their school/students, while holding them accountable for student achievement results” (2008). Maryland’s list of programs or factors that consistently produced positive results in student achievement is a foundation for this study of the relationship between English achievement and teacher perceptions of sufficient time, teacher leadership, school leadership, professional development, and instructional practices and support.

Problem Statement

The purpose of this quantitative study is to analyze the relationship between teaching and learning constructs as operationalized by the Maryland Teaching Empowering, Leading and Learning (TELL) Survey and English achievement at the high-school level. It seeks to examine student learning, as evidenced by the 2011 and 2013 High School Assessment results in English II and determine if a relationship exists between student achievement in English to specific teaching and learning conditions as reported by teachers on the TELL Surveys of 2011 and 2013. The Teaching, Empowering, Leading and Learning (TELL) Maryland Survey is an online, confidential survey for school-based certificated educators, initiated by the governor to capture perceptual data about teaching and learning conditions.

The overarching question guiding this study is “To what extent is there a relationship between high school teacher perceptions of five teaching and learning

constructs, as defined by the TELL Maryland Survey, and changes in aggregate English achievement in Maryland public high schools?”

Specifically the research seeks to answer the following questions:

1. Is there a relationship between teacher perception of “sufficient time,” as operationalized by the TELL Survey, and change in English scores when controlling for prior sufficient time and prior English achievement?
2. Is there a relationship between teacher perception of “teacher leadership,” as operationalized by the TELL Survey, and change in English scores when controlling for prior teacher leadership and prior English achievement?
3. Is there a relationship between teacher perception of “school leadership,” as operationalized by the TELL Survey, and change in English scores when controlling for prior school leadership and prior English achievement?
4. Is there a relationship between teacher perception of “professional development,” as operationalized by the TELL Survey, and change in English scores when controlling for prior professional development and prior English achievement?
5. Is there a relationship between teacher perception of “instructional practices and support,” as operationalized by the TELL Survey, and change in English scores when controlling for prior instructional practices and support and prior English achievement?

Rationale

A key limitation identified in the MGT evaluation was the fact that “High School Assessment (HSA) data from 2008 was not available, so the statistical analyses of the relationships between educational practices and student achievement use data from

elementary and middle schools only” (MGT of America, 2008). The MGT results were used by MSDE to meet RTTT reporting requirements and to provide schools and systems with information to focus improvement efforts. However, the three (3) categories of best practices, including “planning and support system, aligned, individualized and inclusive instructional process, and supportive and positive school environment” cannot be generalized to include the high-school level. This research is intended to provide information to fill that gap.

The MGT study sought to make a comparison of elementary and middle schools that showed improvements in student and school performance to elementary and middle schools that do not show improvements in student and school performance. Another overarching purpose of the study was to create a list of programs and factors that consistently produced positive results for students and schools. The MGT study conducted an analysis of master plans, improvements in student proficiency levels on the Maryland state assessment, a document review, site visits, and a comprehensive survey. The methodology included a statistical analysis of relationships between educational practices in schools and changes in mathematics proficiency levels in schools that implement the various practices. Because schools label similar practices by different names, it was challenging to develop a simple list of programs and factors. The follow-up survey assisted researchers in identifying the extent of implementation of the common practices and then studying the relationship between those levels and the impact on student achievement. An important difference between this study and the volume of available literature about the five teaching and learning constructs which define a

school's culture is that this study explores teacher perceptions of teaching and learning rather than actual measures of teaching and learning.

This study purposefully focuses on teachers' perceptions about the teaching and learning constructs most associated with the social aspects of high school. The five constructs of sufficient time, teacher leadership, school leadership, professional development and instructional practices and support combine to describe the foundational, social interactions and environment in all high schools. For the purpose of this research, "school leadership" is defined by the TELL Survey as the ability of school leadership to create trusting, supportive environments and address teacher concerns. "Teacher leadership" is defined by the TELL Survey as teacher involvement in decisions that impact classroom and school practices. "Professional development" as operationalized by the TELL Survey includes the availability and quality of learning opportunities for educators to enhance their teaching. "Instructional practices and support" is measured by the TELL Survey through the data and supports available to teachers to improve instruction and student learning. Finally, the construct of "sufficient time" in the TELL Survey refers to available time to plan, collaborate, and provide maximum time for instruction during the school day (The New Teacher Center, 2013).

According to McLaughlin and Talbert in *Building School-Based Teacher Learning Communities*, "Available evidence about the relationship between school-based teacher learning communities and positive student outcomes is promising and consistent - but thin" (McLaughlin & Talbert, 2006). The authors call for "documentation and analysis of teacher learning communities in diverse settings" to provide a "cornerstone for local learning systems" (McLaughlin & Talbert, 2006). This quantitative study of the

relationship between teacher perceptions of teaching and learning conditions and student achievement data can add to the growing body of research for promising practices at the high-school level.

Evidence that determines the relationship between teaching and learning conditions and student achievement can help schools make improvement adjustments and refine instructional practices. There is a great deal of research available on professional development, teacher innovation, collaboration, and instructional methodology, as well as the requisite operational conditions. Very little research exists that analyzes the relationship between teacher perceptions of the five foundational teaching and learning constructs and student achievement.

Other research focuses on deeply analyzing the individual participants and then broadens to analyze the collective efforts of the group of teachers. “Professional development needs to be conceived as a collaborative enterprise, where a space for learning through mutual exchange, dialogue, and constant challenge is created” (Musanti & Pence, 2010). Hindin et al. concur, “Despite strong research interest in teacher learning groups, few studies have looked at the relationship between teachers' conversations and collaboration outside the classroom and their actual classroom teaching” (Hindin, Morocco, Arwen, & Aguilar, 2007).

Potential Significance

There is a need for additional study to determine research-based best practices at the high-school level because the future of each student depends on the ability of schools to provide a challenging and personalized educational experience. The organizational structures, staffing models, and the available assessment data at the high-school level are

very different from the context of elementary and middle schools. High school is the capstone of the learning experience, and it is imperative to identify instructional and organizational strategies that consistently produce positive results for students. This study builds on the MGT study, whose results were used by MSDE to meet RTTT reporting requirements and to provide schools and systems with information to focus improvement efforts. The data for this three-year study was only available and relevant until 2014-2015, when the state of Maryland completed its transition to the CCSS and PARCC assessments, after which time state assessments changed, making future longitudinal correlation attempts difficult to validate.

Empirical studies linking the best practices of schools and student achievement are limited due in part to the confounding variables inherent in school programs, particularly the range of socio-economic status, student and community demographics, per-pupil expenditures, leadership, and the complex interplay of the human characteristics of the individuals involved in school communities. This study employs the use of the TELL Survey to accurately represent a sample population of high-school teachers' perceptions about the teaching and learning conditions that exist in respective schools. The previously described teaching and learning constructs of sufficient time, teacher leadership, school leadership, professional development, and instructional practices and support were analyzed to determine relationships to the resulting student achievement levels on Maryland State High School Assessments in English. These data analyses lead to a determination about the relationship between teacher perceptions of those teaching and learning constructs, as defined by the TELL Survey, and high school English achievement, using the school as the unit of analysis.

This study builds on a growing body of research around the concept that students and teachers benefit from instructional practices that include collaborative data analysis. There is a substantial body of work by Linda Darling Hammond and McLaughlin, and Detour (1995, 1999, and 2004) about teachers working together. What is lacking from the study of teacher collaboration practices is the statistical evidence that teacher perceptions of those instructional practices have a relationship with student achievement in English. This study seeks to determine if the constructs of sufficient time, school and teacher leadership, professional development, and instructional practices and support, as operationalized by the TELL Survey, provide a research-based and foundational framework to potentially guide teachers to impact student learning in English.

Methodology

The study identifies the relationship between student achievement in English to teacher perceptions of specific teaching and learning conditions using quantitative methodology. The hypothesis is that the research-based constructs of sufficient time, school and teacher leadership, professional development, and instructional practices and support will have a relationship to English achievement. Descriptive statistics of the sample Maryland high school English HSA and TELL Survey results were gained from analyzing data publicly available on the Maryland State Department of Education website and from published results of the 2011 and 2013 TELL Surveys. A theoretical model was created to depict the relationships between teacher perceptions of each of the teaching and learning constructs and high school English achievement in a defined population of western Maryland high schools. This model was used to conduct a path analysis, which

is “a methodology for representing, estimating, and testing of theoretical network of linear relations between variables” (Rigdon, 1998).

Thomas Guskey’s five levels of professional development evaluation is a conceptual framework used to document the connection between professional development and student achievement. (Guskey, 2000) At the highest level, the impact on student learning, as measured by the HSA, was analyzed for each of the high schools and correlated to the TELL Survey perceptual data. Using a similar correlation for middle and elementary schools, the MGT evaluation found that “proficiency levels statewide have improved dramatically for all students and for groups identified by No Child Left Behind. The evaluation identified “five (5) intensely and highly interrelated planning and support activities” or “best practices” that made a “significant impact on improving student proficiency levels.”

The research uses path analysis to determine the relationship between the TELL Survey data from 2011 and 2013 and student performance on the 2011 and 2013 HSA in English for a purposeful sample of high schools of Maryland. MGT’s quantitative measures included an analysis of improvements in student performance on the Maryland State Assessment and “statistical analyses of the relationships between educational practices in schools and changes in student proficiency levels in schools that implement different practices” (Ibid.). Further model redesign and instrumentation were determined based upon the context of the data analysis.

Statistically significant relationships between change in teacher perception of any of the five teaching and learning constructs and change in English can be used to inform effective practices at the high school level. Even though causality, the most stringent

research standard, cannot easily be established outside a controlled laboratory setting, the strength and direction of the findings of this study will warrant confidence. The Children's Aid Society evaluators state that a connection can be assumed when 1) findings are consistent with the best available research and 2) there is anecdotal corroboration among participants and observers about the effects and impacts (Cancelli, Brickman, Sanchez and Rivera, 1999).

Limitations

This study is limited to a small sample of thirty-four (34) comprehensive, public high schools in eight (8) western Maryland public school systems who had above a 50% participation rate on the TELL survey and available English High School Assessment school-level percentages for 2011 and 2013. Caution should be used when generalizing to other high schools with variations in the descriptive statistics of the sample high school populations. Other confounding variables include changes in school administration, the variation of demographic and economic indicators, and the impending change in curriculum, assessments, and classroom observation and evaluation tools currently utilized by each of the eight school districts. MSDE will still administer the High School Assessments for English II, Algebra I, and biology as graduation requirements through 2014-2015, but the transition to the Common Core State Standards and the PARCC assessments made 2013 the last true administration of the Algebra I High School Assessment. In order to comply with NCLB, this metric required 100% of students to pass the assessments by the year 2014. The stable student achievement data used in this study will not continue to be available beyond 2014-15, as Maryland transitions to the new assessment program. To provide additional trend data, the analysis of student

performance on the High School Assessments in English will begin with the 2011 test administration.

Due to the methodological design, this study cannot prove absolute causal relationships. It does, however, have the potential to add to knowledge about teacher perceptions of teaching and learning conditions and the relationship to student performance in English within acceptable limitations. Finally, it is important to note that the researcher is also a participant as the principal of a high school included in one county school system under study. While the high school data are included in statistical analysis for correlation purposes, leadership is a measured construct which may have presented a potential conflict of interest.

Key Terms

Elementary and Secondary Education Act: On January 8, 2002, President Bush signed into law the No Child Left Behind Act. This comprehensive act was aimed at closing the gap between those who are achieving and those who are not.

Race to the Top (RTTT) provides competitive grants to encourage and reward States that are creating the conditions for education innovation and reform.

Bridge to Excellence in Public Schools Act (BTE) passed by the General Assembly in 2002, established the legislative requirement for the creation/submission of a five-year comprehensive master plan around the concept of fiscal responsibility, and for the first time school finance became directly linked to improving student learning.

MGT of America, Inc. is a national consulting firm specializing in research and evaluation hired by MSDE to research the impact of increased funding.

Academic intervention opportunities are provided to students who have not mastered the key concepts, often including re-teaching and individualized assistance.

Math specialist is a teacher who has expertise in the content area who works with other teachers in a coaching and mentoring relationship.

Master plan is required by BTE for school systems to create and submit a comprehensive five-year plan with financial documentation.

High School Assessments (HSA) are a test of a student's knowledge of Core Learning Goals contained in certain course content areas.

Common Core State Standards (CCSS) describe the knowledge and skills in English Language Arts and Mathematics that students will need when they graduate, whatever their choice of college or career. These sets of standards define the knowledge and skills students should have to succeed in entry-level, credit-bearing, academic college courses and in workforce training programs. It is a state-led effort coordinated by the National Governors Association Center for Best Practices (NGA Center) and the Council of Chief State School Officers (CCSSO).

Partnership of Readiness for College and Careers (PARCC) is a 23-state consortium working together to develop next-generation K-12 assessments in English and math.

Summative assessments are given periodically to determine at a particular point in time what students know and do not know, typically at the end of a unit of study.

Formative assessments are part of the instructional process. When incorporated into classroom practice, it provides the information needed to adjust teaching and learning while they are happening.

Professional Learning Community (PLC) is an extended learning opportunity to foster collaborative learning among colleagues within a school to organize teachers into working groups.

Time refers to available time to plan, collaborate, and provide maximum time for instruction during the school day.

School leadership refers to the ability of school leadership to create trusting, supportive environments and address teacher concerns.

Teacher leadership refers to teacher involvement in decisions that impact classroom and school practices.

Professional development refers to the availability and quality of learning opportunities for educators to enhance their teaching.

Instructional practices and support refers to data and supports available to teachers to improve instruction and student learning.

Chapter Two: Literature Review

Introduction

A wealth of professional literature develops the premise that teaching and learning conditions, including collaborative planning, strategic data use, and ongoing professional development, along with organizational support and strong leadership, have the potential to impact student achievement. Through an analysis of high performing schools, the conceptual framework was created to guide the research design. The research design sought to identify the relationship between teacher perceptions of five teaching and learning constructs of time, teacher leadership, school leadership, professional development, and instructional practices and support, as operationalized by the TELL Survey, and student achievement in English, as measured by the English High School Assessment for sample Maryland high schools.

The literature presented in this chapter underscores the need to inform the political decision-makers, through a search to identify complex, value-added models that demonstrate consistent student achievement improvement. This context is important to understand as the American public school system works to improve instructional practices to meet the unique needs of all students in an inclusive educational program. Education legislation continues to drive reform due in part to the undeniable pressure for the United States to be economically and globally competitive. It is critical to analyze, synthesize, clarify, and communicate research-based models of successful school teaching and learning conditions that are replicable and effective for all students.

The remaining literature provides a review of the research behind the TELL Survey constructs of sufficient time, school and teacher leadership, professional development, and instructional practices and supports. The research base around the TELL Survey construct of “sufficient time” includes a review of studies about class sizes, the importance of instructional time and non-instructional time, and the efforts of successful schools to reduce class interruptions, routine paperwork, and duties that interfere with teaching and learning as the priority.

The “teacher leadership” construct is based in research around the concept of teachers as educational experts, who are relied upon to make sound professional decisions in the best interest of students. It includes a review of literature about teachers who go beyond the typical classroom responsibilities to lead group decisions and facilitate effective problem-solving. The “school leadership” construct is derived from a wealth of literature about effective school leaders who develop a shared vision and mutual respect. The research supports the concept that effective leaders set high standards for instruction and communicate clear expectations. The literature is filled with qualitative case studies that support the concept that effective school leaders facilitate data use, provide teacher performance feedback, and recognize accomplishments.

Literature about “professional development” asserts that offerings should be data-driven and aligned with the curriculum and school improvement plan. Additional literature suggests that professional development should be collaborative and differentiated for adult learners, as they develop deeper content knowledge. The effective processes for professional development are defined as on-going and cyclical, including time for follow-up and reflection. Finally, the literature supports the concept that

effective professional development should be evaluated and those results should be communicated.

The literature regarding the concept of “instructional practices and supports” includes a review of professional learning communities as a vehicle to analyze and use student formative and summative assessment data. The research suggests that the practices inherent in a collaborative review of data can facilitate teachers making instructional adjustments to enhance instructional delivery. The literature-base for the five constructs operationalized by the TELL Survey is then presented and synthesized to form a theoretical foundation for the research proposal.

High Performing Schools

A meta-analysis of empirical studies around successful high schools concluded, among other things, that “raising standards, creating small learning environments, reorganizing the school day into small flexible segments, enhancing professional development, and varying student assessments” were some of the ways schools have demonstrated success (M. Visser, 1999, pp. 1-2). The majority of studies reviewed conclude that there is no one way in which schools become high performing; rather it is a complex interplay of factors that are associated with successful schools. “In every case, there was no single factor that accounted for the success or improvement. Instead, the researchers found that high performing schools tend to have a combination of common characteristics” (Jenkins, 2000). According to Jenkins, high performing schools have:

1. A clear and shared focus.
2. High standards and expectations for all students.
3. Effective school leadership.

4. High levels of collaboration and communication.
5. Curriculum, instruction and assessments aligned with state standards.
6. Frequent monitoring of learning and teaching.
7. Focused professional development.
8. A supportive learning environment.
9. High levels of family and community involvement.

In another study, researcher Kathleen Cotton lists fifteen effective-schooling attributes of a similar nature. She aggregates the research of effective practices into two categories. The first is "Contextual Attributes," which include the following: "safe and orderly school environment; strong administrative leadership; primary focus on learning; maximizing learning time; monitoring student progress; academically heterogeneous class assignments; flexible in-class grouping; small class size; supportive classroom climate; parent and community involvement" (Cotton, 2000). The second category is labeled "Instructional Attributes" which include the following: "careful orientation to lessons; clear and focused instruction; effective questioning techniques; feedback and reinforcement; review/re-teaching as needed" (Cotton, 2000).

More recently, Marzano's meta-analysis of research concluded that there were 21 leadership responsibilities that correlated with student achievement. Each responsibility, "affirmation, communication, ideals/beliefs, involvement in curriculum, instruction, and assessment, and monitoring/evaluation," to name a few, was positively correlated with student achievement (Marzano & McNulty, 2005). What appears consistent from the review of effective school literature is that teachers must have sufficient time and organizational supports, leadership can have a significant, positive effect on student

learning, and professional development, along with sound instructional practices, are used by effective schools to meet the needs of students.

Sufficient Time

One of the areas of research around the concept of time focused on class size. The research asserts that smaller class sizes allow the teacher to adequately address the learning needs of all students in the class. In her policy brief, *Does Class Size Matter*, researcher Diane Whitmore Schanzenbach concludes, “The academic literature strongly supports the common-sense notion that class size is an important determinant of student outcomes” (Schanzenbach, 2014).

Class size has been studied at length; however, most of the high-quality evidence on the effects of class-size reduction is based on studies of the early grades. The available evidence on the impact of class size on outcomes in older grades is more limited, and more research in this area is needed. A notable exception is Dee and West, who estimate class-size effects using variation in class sizes experienced by students across classes in different subjects and by students taking classes from the same teachers in different class periods. The study finds that smaller class sizes in eighth grade have a positive impact on test scores and measures of student engagement and finds some evidence that these impacts are larger in urban schools (Boozer, 2001). It is important to note that smaller class sizes as a function of remediation can distort the effect of class size on student achievement.

Other literature focused on expanding and maximizing instructional time. Today, there are at least 1,000 schools across the U.S. offering an expanded schedule, according to a 2010-2011 survey conducted by the National Center on Time & Learning (NCTL).

Researchers tell us that schools differ enormously in how much time their students spend engaged in appropriately challenging learning activities (Honzay, 1987). More time allows schools to offer a challenging academic program, while still providing individualized academic supports that address the specific skill and knowledge gaps that can impede students' progress. To make full use of data analysis systems, schools do need more time to conduct assessments, analyze, and respond to data.

In a study of successful, expanded time schools, teachers work to plan instruction that makes the most of time available. "Lesson plans are carefully crafted to make class time highly productive. Learning kicks in from the moment class starts and the pace is energetic until class ends" (Kaplan & Chan, 2011). The teachers work together to provide more time on specific content skills for those students who demonstrate a need for more time. "Rather than trying to fit student learning into a preconceived and uniform schedule, highly successful schools mold academic instruction and learning time to fit the unique needs of the students they serve" (Kaplan & Chan, 2011). Teachers are provided with time to analyze data and respond to that data, making informed instructional decisions for the students.

Finding this time for job-embedded professional learning is one of the most frequently cited challenges with implementing change in education (Bill & Melinda Gates Foundation, 2011). Sometimes repurposing the time that exists is the easiest way to generate time for collaborative professional learning and planning among educators, a practice associated with increases in student learning (Gallimore, Ermeling, Saunders, & Goldenberg, 2009). In order to create time, school leadership teams attempt to minimize interruptions to the school day, minimize routine paperwork and protect teachers from

non-instructional duties. At successful schools, “Schedules and procedures are developed and routinely modified to eliminate wasted time and disruption from activities such as locker breaks, transitions, arrivals, and dismissals” (Kaplan & Chan, 2011).

The TELL Maryland Survey uses a series of questions displayed in Table 2.1 to determine teacher perceptions about the construct of sufficient Time. The TELL Maryland survey has been externally validated and found reliable as part of the MET Project supported through the Bill and Melinda Gates Foundation (Swanlund, 2011). The survey measures sufficient time by asking teachers to indicate the extent to which class sizes are reasonable to meet the needs of all students and whether there is time available to collaborate with other teachers. Teachers assess whether instruction occurs with minimal interruptions, the non-instructional time is sufficient, and if efforts are made to reduce routine paperwork. Teachers report whether they believe they have sufficient instructional time to meet the needs of all learners and that additional duties which may interfere with instruction are reduced. The survey asks teachers to “Please rate how strongly you agree or disagree with the following statements about the use of time in your school” (The New Teacher Center, 2013). Teachers can select from a Leikert response scale “strongly disagree, somewhat disagree, neither disagree nor agree, somewhat agree, or strongly agree” (The New Teacher Center, 2013).

Table 2.1: 2011 and 2013 TELL Survey Time Construct Questions

Q2.1	Please rate how strongly you agree or disagree with the following statements about the use of time in your school.
a.	Class sizes are reasonable such that teachers have the time available to meet the needs of all students.
b.	Teachers are allowed to focus on educating students with minimal interruptions
c.	The non-instructional time provided for teachers in my school is sufficient.
d.	Efforts are made to minimize the amount of routine paperwork teachers are

	required to do.
e.	Teachers have sufficient instructional time to meet the needs of all students.
f.	Teachers are protected from duties that interfere with their essential role of educating students.

Teacher Leadership

The literature about teacher leadership is less defined than that of principal leadership. There is no consistent definition of what a teacher leader does (Scribner & Bradley-Levine, 2010), and we “lack a comprehensive view of what teacher leadership is [and] how it works” (Lord & Miller, 2000, p. 9). Teacher leaders can be consultants, curriculum managers, department chairs, mentor teachers, professional development coordinators, resource teachers, specialists, coaches, and demonstration teachers (Lord & Miller, 2000; Mangin & Stoelinga, 2008). The foundation of teacher leadership is the concept that “most of the knowledge required for improvement must inevitably reside in the people who deliver instruction, not in the people who manage them” (Elmore, 2000, p. 14).

Teachers represent the largest and most stable group of adults in the school, and the most politically powerful (Lambert, et al., 1995). Effective school leaders maximize the leadership capacity of teachers. Lambert (1998) states that “a school must build its own teacher leaders if it is to stay afloat, assume internal responsibility for reform, and maintain a momentum for self-renewal” (p. 3). Principals who want to see results in student learning invest energy to build leadership capacity around key issues regarding student achievement, rather than the operational tasks of running the school (Murphy, 1999).

“Schools with strong professional communities were better able to offer authentic pedagogy and were more effective in promoting student achievement” (Newmann & Wehlage, 1995, p. 3) Most professional learning communities are led by teachers. “The litmus test of all leadership is whether it mobilizes people’s commitment to putting their energy into actions designed to improve things. It is individual commitment, but above all it is collective mobilization” (Fullan, 2001).

Most of the literature on teacher leadership is qualitative and descriptive in nature. Like early studies of the principal, teacher instructional leadership studies define characteristics and behaviors like building trust, collaborating, communicating, and modeling (Lord et al., 2008). Leithwood and Riehl (2005) found teacher leaders improved student learning by promoting a shared vision and acceptance of group goals, strengthening culture, and developing people through individual support and intellectual stimulation. Marks and Louis (1997) found teacher participation in site-based governance was related to teacher quality and student performance. Marks and Printy (2003) concluded student achievement and teaching improved when teachers shared instructional leadership with principals and took on transformational leadership roles.

“Teacher leaders see themselves first as teachers; although they are not interested in becoming administrators, they are looking to extend their influence” (Danielson, 2006, p. 15). Teacher leaders work to improve the factors that directly impact student learning. “Many of the qualities that we look for in leaders are precisely those qualities that make people very good teachers. With this in mind, the development of leadership can be seen as the result of some types of professional development. It happens naturally in those processes where people begin to take charge. It happens even more powerfully when staff

members work together to foster collective learning and a school” (Caine & R.N., 2000). Teachers as leaders can make the immediate instructional adjustments necessary to assist students in learning content. “When given opportunities to lead, teachers can influence school reform efforts. Waking the sleeping giant of teacher leadership has unlimited potential in making a real difference in the pace and depth of school change” (Katzenmeyer & Moller, 2001, p. 102).

The TELL Maryland Survey uses a series of questions to determine teacher perceptions about Teacher Leadership. The survey asks teachers to indicate their level of agreement with statements about how teachers are regarded as educational experts, are trusted to make sound decisions, accept leadership roles, and have effective processes for making group decisions and problem solving. The survey asks teachers to “Please rate how strongly you agree or disagree with the following statements about teacher leadership in your school” (The New Teacher Center, 2013). Teachers can select from a Leikert response scale “strongly disagree, somewhat disagree, neither disagree nor agree, somewhat agree, or strongly agree” (The New Teacher Center, 2013).

Table 2.2: TELL Survey Teacher Leadership Construct Questions

Q6.1	Please rate how strongly you agree or disagree with the following statements about teacher leadership in your school.
a.	Teachers are recognized as educational experts.
b.	Teachers are trusted to make sound professional decisions about instruction.
c.	Teachers are relied upon to make decisions about educational issues.
d.	Teachers are encouraged to participate in school leadership roles.
e.	The faculty has an effective process for making group decisions to solve problems.
f.	In this school we take steps to solve problems.
g.	Teachers are effective leaders in this school.
Q6.5	Teachers have an appropriate level of influence on decision making in this school.

School Leadership

Early literature on effective schools provides insights from data gathered regarding the role of the principal. Leithwood and Montgomery (1982) in their review of the literature on effective schools concluded that “the role of the principal has emerged as critical” (p. 309). They also found that principals in effective schools attempt to “influence a complex set of classroom-based and school wide factors ... and are able to define priorities focused on the central mission of the school and gain support for these priorities from all stakeholders” (p.334-335). Sweeney (1982) concluded that “a reasonably extensive body of evidence gathered by respected researchers through in-depth study supports the proposition that the principal makes a difference in schools” (p. 352).

The principal as instructional leader model emerged in the early 1980s in the research on effective schools. The principal’s role was to focus on the teachers as the teachers focused on helping students learn. Hallinger’s (2003) most frequently used conceptualization of instructional leadership proposed three dimensions: defining the school’s mission, managing the instructional program, and promoting a positive school-learning climate. Researchers conclude that these principal practices significantly affect student learning, although indirectly by influencing a school’s vision and direction, organizational effectiveness, and teacher effectiveness (Hallinger & Heck, 1996; Leithwood & Jantzi, 2008; Marzano, Waters, & McNulty, 2005).

Philip Hallinger developed one of the most widely used tools for measuring instructional leadership, the Principal Instructional Management Rating Scale (PIMRS) in the 1980s (Hallinger,1990). The PIMRS isolated 50 principal behaviors, assessing three

dimensions and 10 functions of instructional leadership that include defining the school's mission, managing the instructional program, and promoting a positive school learning climate (Hallinger & Murphy, 1985). In 1996, the Interstate School Leadership Licensure Consortium created the national Standards for School Leaders, influenced in part by Hallinger's framework.

Another branch of educational literature is around the concept of transformational leadership. This simple premise is that others will follow in the presence of a true leader with a strong vision. Other researchers confirmed that in successful schools a "clear vision for the school is articulated by the principal to the point of redundancy" (Smith & Andrews, 1989, p. 46). Successful leaders ensure that "frequent feedback is given to teachers after classroom visits, to custodians and secretaries after performance observations were special contributions, to students for achievements of all kinds, and to parents for their support and efforts" (Smith & Andrews, 1989, p. 46). Transformational leadership has its roots in the work of James Burns, considered by many as the founder of modern leadership theory. Burns (1978) shared a definition of leadership in general:

I define leadership as leaders inducing followers to act for certain goals that represent the values and the motivation - the wants and the needs, the aspirations and expectations-of both leaders and followers. And the genius of leadership lies in the manner in which leaders see and act on their own and their followers' values and motivations (p. 19).

McKinsey & Company (2007) carried out research to understand why the world's top performing school systems perform so very much better than most others and why

some educational reforms succeed so spectacularly, when most others fail. This study examined what high-performing school systems have in common and what tools they use to improve student outcomes. “All the different school systems that have improved significantly have done so primarily because they have produced a system that is more effective in doing three things: getting more talented people to become teachers, developing these teachers into better instructors, and ensuring that these instructors deliver consistently for every child in the system” (McKinsey & Company, 2007). School leadership is instrumental in developing and maintaining this system.

The conclusion of the report by McKinsey and Company draws attention to the fact that school reforms rarely succeed without effective leadership, both at the level of the system and at the level of individual schools. One meta-analysis of school leadership noted that, “there is not a single documented case of a school successfully turning around its pupil achievement trajectory in the absence of talented leadership ” (Leithwood, Day, Sammons, Harris, & Hopkins, 2006, p. 5). The McKinsey report (2007) offers three guiding principles: 1) the quality of an education system cannot exceed the quality of its teachers, 2) the only way to improve outcomes is to improve instruction and, 3) achieving universally high outcomes is only possible by putting in place mechanisms to ensure that schools deliver high-quality instruction to every child.

The TELL Maryland Survey uses a series of questions to determine teacher perceptions about School Leadership. The survey, built on the literature base, measures school leadership through the use of Leikert scale questions, which indicate the level of teachers’ agreement about key leadership characteristics in his or her school. The survey asks teachers about the school-level existence of shared vision, trust and respect, comfort

level in raising issues, support for teachers, high standards for instructional delivery, an expectation that teachers use data to improve instruction, objective evaluation and feedback, a school improvement team, teacher recognition, and clear expectations for all audiences. The survey asks teachers to “Please rate how strongly you agree or disagree with the following statements about the leadership in your school.” A second set of questions asks teachers to rate agreement with statements that begin with “The school leadership makes a sustained effort to address teacher concerns about the following.” Teachers can select from a Leikert response scale “strongly disagree, somewhat disagree, neither disagree nor agree, somewhat agree, or strongly agree” (The New Teacher Center, 2013).

Table 2.3: TELL Survey School Leadership Construct Questions

Q7.1	Please rate how strongly you agree or disagree with the following statements about school leadership in your school.
a.	The faculty and leadership have a shared vision.
b.	There is an atmosphere of trust and mutual respect in this school.
c.	Teachers feel comfortable raising issues and concerns that are important to them.
e.	Teachers are held to high professional standards for delivering instruction.
f.	The school leadership facilitates using data to improve student learning.
g.	Teacher performance is assessed objectively.
h.	Teachers receive feedback that can help them improve teaching.
i.	The procedures for teacher evaluation are consistent.
j.	The school improvement team provides effective leadership at this school.
k.	The faculty are recognized for accomplishments.
l.	The school leadership communicates clear expectations to students and parents.
Q7.3	The school leadership makes a sustained effort to address teacher concerns about:
a.	Leadership issues
b.	Facilities and resources
c.	The use of time in my school
d.	Professional development
e.	Teacher leadership
f.	Community support and involvement
g.	Managing student conduct
h.	Instructional practices and support

i.	New teacher support
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Professional Development

Professional development is a common practice that exists in all school improvement efforts. As education in the United States evolved, the concepts and the processes of teacher training or professional development also advanced. Horace Mann, considered by many to be the “Father of American Education,” wrote “To obtain truth for oneself is a very different thing from proving it to another, and to prove the same truth to a child may require a process very different from they which would prove it to a man...” (McGrath, 2013). This early recognition that teachers required specialized training to relate academic subjects to children led to the development of specialized schools. The idea of a teachers’ training college was invented in Germany by Augustus Herman Franke. He called the training school “a Teachers’ Seminary.” Franke’s idea was then introduced to America by Horace Mann. Mann named these training schools “normal schools” (Synenki, 2003).

Traditionally, staff development has been defined as "the provision of activities designed to enhance the knowledge, skills and understandings of teachers in ways that lead to changes in their thinking and classroom behaviour" (Fenstermacher and Berliner, 1983). Historically, the in-service model involved single events during which information was provided to teachers, without measuring implementation. Critics maligned the traditional professional development model, stating that the prevalence of single-shot, one-day workshops that often make teacher professional development “intellectually superficial, disconnected from deep issues of curriculum and learning, fragmented, and noncumulative” (Ball & Cohen, 1999, pp. 3–4). Others criticized it as a “patchwork of

opportunities—formal and informal, mandatory and voluntary, serendipitous and planned” (Wilson & Berne, 1999, p.174). Authors of a Regional Education Laboratory (REL) meta-analysis of professional development models in the early 21st century reflected, “At the end of this journey through so much that has been studied and written on teacher professional development over a decade, what perhaps more vividly stands out is the extent to which, at least in these publications, we have moved away from the traditional in-service teacher training (INSET) model” (Yoon, Duncan, Lee, Scarloss, & Shapley, 2007).

At the beginning of the 21st century, new characteristics of effective professional development emerged. Experts agreed that high quality professional development should be intensive, sustained, content-focused, coherent, well defined, and strongly implemented (Garet et al., 2001; Guskey, 2003; Loucks-Horsley, Hewson, Love, & Stiles, 1998; Supovitz, 2001; Wilson & Berne, 1999). Others added that it should be based on a carefully constructed and empirically validated theory of teacher learning and change (Ball & Cohen, 1999; Richardson & Placier, 2001; Sprinthall, Reiman, & Thies-Sprinthall, 1996). It should promote and extend effective curricula and instructional models—or materials based on a well-defined and valid theory of action (Cohen, Raudenbush, & Ball, 2002; Hiebert & Grouws, 2007; Rossi, Lipsey, & Freeman, 2004).

Teachers agree that professional development is vital to school improvement; a large-scale, nationally representative survey of over 40,000 teachers conducted found that 85% of the teachers viewed professional development as “absolutely essential” or “very important” to retaining good teachers. By comparison, 81% of teachers viewed higher salaries as “absolutely essential” or “very important” (The Bill and Melinda Gates

Foundation, 2010a). Professional development is a notion inclusive of the concept of reflective practice, a now well-recognized element in teaching. "What teachers take away from professional development efforts is based on their existing knowledge and beliefs. Rather than having information delivered to them, teachers need to examine their beliefs about subject matter, student learning and instruction in the light of innovation" (Marx, Blumenfeld, Krajcik, and Soloway, 1998, p. 33). Assessment of professional development could take several forms, including self-help inventory or teacher-specified needs, classroom observation, content and pedagogical knowledge assessment (Goldschmidt & Phelps, 2010), student survey (The Bill and Melinda Gates Foundation, 2010b), value-added statistical analysis using student assessment data, and peer review. In response to this assessment challenge, a large-scale research study of measures of teaching effectiveness is seeking to develop fair and reliable measures of effective teaching that can be used to help identify teachers' needs (The Bill and Melinda Gates Foundation, 2010b).

A relatively new professional development practice includes the use of data by teacher teams to determine additional instructional methods and areas of focus. "Even in schools that were identified as good data users by Means et. al (2009), teachers wanted more professional development related to data use." There are various processes used by teacher teams to engage in job-embedded professional development. Teachers in either grade-level or content-area teams meet several times a week to collaborate on teaching strategies and solve problems. "In the most sophisticated examples, teachers set common instructional goals, teach lessons in their individual classrooms, administer informal assessments to determine levels of student mastery, and then regroup as a team to analyze

the data together. Then, they pinpoint areas of success, identify areas for improvement, and set goals for future teaching” (Honowar, 2008).

High school improvement has been linked to the establishment of professional learning communities and organizational structures that result in a change in school culture. An impressive array of scholars and reformers have called for teachers to overcome their historic isolation through the development of “teacher professional community” (McLaughlin & Talbert, 1993), “professional learning communities” (Dufour, Eaker, & Dufour, 2005), “inquiry communities” (Cochran-Smith & Lytle, 1992a), schools as “communities of learners” (Barth, 1984), “instructional communities of practice” (Supovitz, 2002), and similar variations on the theme of “learning communities” (McLaughlin & Talbert, 2001; Sergiovanni, 2000).

Clearly, organizational structures are required to support effective professional development. Grade/subject or vertical team planning time, student-level data analysis and utilization, and a supportive and positive school environment provide the underpinnings that allow teachers to work closely together, collaboratively planning, to meet the various and complex needs of student learners. The REL meta-analysis examined more than 1300 hundred studies identified as potentially addressing the effect of teacher professional development on student achievement. Among the key findings was that “studies that had more than 14 hours of professional development showed a positive and significant effect on student achievement from professional development” (Yoon, Duncan, Lee, Scarloss, & Shapley, 2007, p. iv. Summary).

One study of high schools which effectively used data to inform improvement efforts found that “structured departmental and or course alike time for collaboration was

essential for teachers to engage in data discussions” (Datnow, Park, & Kennedy, 2008). A major three-part study by the Stanford Center for Opportunity Policy in Education, in partnership with the National Staff Development Council (now Learning Forward), provides some of the most up-to-date descriptive information on professional development trends in the United States (Darling-Hammond, Wei, Andree, Richardson, & Orphanos, 2009). The study, founded in part by the Bill and Melinda Gates Foundation, was released in three phases through 2010. The researchers drew on a variety of sources, including reviews of mainly qualitative literature, research on teacher learning in developed countries, surveys of teachers conducted by the Learning Forward group, survey data from the annual MetLife Survey of the American Teacher, and data from three administrations of the federal Schools and Staffing Survey. Among other findings, the reports stated that “U.S. teachers generally spent more time instructing students and less time in professional learning opportunities with their peers than those in top-performing countries (Darling-Hammond, Wei, Andree, Richardson, & Orphanos, 2009).

This difference may be because, “in order to provide enough time for teachers to work together effectively, such models frequently require schools to overhaul their schedules or arrange for a delayed-start time” (Sawchuk, 2011). Teachers at successful schools met regularly - monthly or more often - to discuss student performance against state standards in order to reach measurable achievement goals (Richardson, 1999).

“Ultimately, your goal should be to embed the use of data in the day to day operations of your school as part of a continuous cycle of school improvement” (Protheroe, 2009).

Means et. al (2009) considered such opportunities an essential element in effective data

use, “the most sophisticated data warehouse in the world will have no effect on instruction if no one has- or takes - the time to look at the data, reflect on them, and draw inferences for instructional planning” (p. 5).

As for the evaluation of professional development, experts recognize that there is a complex linkage between teacher learning and improved practice to student achievement. Thomas Guskey developed five questions to shape the evaluation plan, evaluation design and data collection, data quality and data analysis, and reports. Those questions dealt with Participant Information, Classroom Observation, Product Analysis, and Student Achievement (Guskey T. , 2000). “Professional development affects student achievement through three steps. First, professional development enhances teacher knowledge and skills. Second, better knowledge and skills improve classroom teaching. Third, improved teaching raises student achievement” (Guskey T. , 2000). He maintained that effective professional development leads to observable, measurable improvements in teaching.

The Evaluation of Student Achievement as a Result of Professional Development by the REL Southwest Regional Education Laboratory at Edvance Research, Inc. used specific criteria for examining professional development studies based on empirical evidence according to the What Works Clearinghouse (2007). The evaluation indicated that effective professional development is:

- Content-sustained, intensive, and content-focused - to have a positive and lasting impact on classroom instruction and teacher performance,
- Aligned with and directly related to state academic content standards, student achievement standards, and assessments,

- Improves and increases teachers knowledge of the subjects they teach,
- Advances teachers' understanding of effective instructional strategies founded on scientifically based research, and
- Regularly evaluated for effects on teacher effectiveness and student achievement.

An important limitation of the review is that all nine studies included focused on elementary schools from 1986 to 2003. Experts in the field concurred that “few rigorous studies address the effect of professional development on student achievement” (Borko, 2004; Clewell, Campbell, & Perlman, 2004; Kennedy, 1998; Killion, 1999; Loucks-Horsley & Matsumoto, 1999; Supovitz, 2001). The review concluded with the recognition that there is “a shortage of high-quality professional development programs” and urge a call to “find future studies to more fully address professional development’s direct effect on teachers and its indirect effect on students” (Yoon, Duncan, Lee, Scarloss, & Shapley, 2007).

The majority of research for the past two decades addressing the topic of “educational leadership” does not even use student achievement as a dependent variable (Waters, Marzano, & McNulty, 2005). Hard data on which professional-development models lead to better teaching, let alone better student achievement, are difficult to find. “In essence, professional development relies on a two-part transfer of knowledge: It must inculcate in teachers new knowledge and skills such that they change their behavior, and those changes must subsequently result in improved student mastery of subject matter” (Sawchuk, 2011). This complex connection makes a causal relationship extremely difficult to prove. “Much of the research conducted on professional development continues to be descriptive rather than quantitative” (Sawchuk, Nov. 10, 2010c).

The TELL Maryland Survey uses a series of questions to determine teacher perceptions about Professional Development. The survey evaluates the five teaching and learning constructs through a series of questions that ask teachers to indicate a level of agreement for specific statements. Teachers are asked whether sufficient resources are available, offerings are differentiated and follow-up is provided. They are asked if they have sufficient time to work with colleagues and whether the professional development is evaluated and communicated to teachers. The questions ask if time is provided, offerings are data driven, aligned with the School Improvement Team and focused on student learning. The survey asks teachers to “Please rate how strongly you agree or disagree with the following statements about professional development in your school” (The New Teacher Center, 2013). Teachers can select from a Leikert response scale “strongly disagree, somewhat disagree, neither disagree nor agree, somewhat agree, or strongly agree” (The New Teacher Center, 2013).

Table 2.4: TELL Survey Professional Development Construct Questions

Q8.1	Please rate how strongly you agree or disagree with statements about professional development in your school.
a.	Sufficient resources are available for professional development in my school.
b.	An appropriate amount of time is provided for professional development.
c.	Professional development offerings are data driven.
d.	Professional learning opportunities are aligned with the school’s improvement plan.
e.	Professional development is differentiated to meet the needs of individual teachers.
f.	Professional development deepens teachers' content knowledge.
g.	Teachers are encouraged to reflect on their own practice.
h.	In this school, follow up is provided from professional development.
i.	Professional development provides ongoing opportunities for teachers to work with colleagues to refine teaching practices.
j.	Professional development is evaluated and results are communicated to teachers.
k.	Professional development enhances teachers' ability to implement instructional strategies that meet diverse student learning needs.
l.	Professional development enhances teachers' abilities to improve student learning.

Instructional Practices and Support

Having data available from both the state and local assessments in a timely manner has historically been a challenge. Even when the summative data are available, it is often data for students who have moved to another grade or even to another level. As data systems improve, more formative data are available. “Despite the increased amounts of data available, many educators still feel ill prepared to analyze and use their school data effectively. They are data rich, but information poor” (Ronka, Lachat, Slaughter, & Meltzer, 2009).

The Maryland State Department of Education adopted the Classroom-Focused Improvement Process (CFIP) as a model for school improvement at the classroom level using data dialogues. The model was developed by Dr. Ronald Thomas and Dr. Michael Hickey from the Center for Leadership in Education at Towson University. They define CFIP as a “collaborative, six-step process for increasing student achievement that is carried out by teacher teams at the grade or department level, or as a vertical team, as part of their regular lesson planning cycle” (Thomas & Hickey, 2012). Teacher teams use CFIP to analyze student achievement, including summative and formative data, to select and study an objective for instructional focus.

Through a question-based protocol, teams determine specific evidence of mastery and collaboratively plan effective lessons, examine resulting data, plan instructional follow up, and plan in-class enrichments and interventions. Following this process, teachers explore the curricula deeply and increase their professional knowledge through

the focused instructional conversations. Protocols are facilitated by teacher leaders, allowing teachers to examine student work, draw conclusions, and identify instructional implications in a highly formalized and structured process. Data are analyzed, instructional techniques are selected to improve outcomes, and follow up data are analyzed to determine the need for intervention or enrichment. In this model, professional development is organic, responding to the need for information, support, data, and resources identified by teachers.

Professional teaching practices have an enormous impact on student achievement (Marzano R. , 2003). An impressive array of scholars and reformers have called for teachers to overcome their historic isolation through the development of “teacher professional community”, (McLaughlin & Talbert, 2006) “professional learning communities “ (Dufor & Dufour, 2005), “inquiry communities “ (Cochran-Smith & Lytle, 1992), and schools as “communities of learners” (Barth, 1984). According to McLaughlin & Talbert (2001), a true learning community operates under the assumption that all students can achieve high academic standards when students take an active role in the learning and the curriculum spirals to repeat core concepts. Collaboration is purposefully arranged around teaching and learning and developed through a shared inquiry. McLaughlin & Talbert (2001) add that teachers examine student work together with the purpose of analyzing instructional practices, adjusting as necessary. They build a shared understanding of best practices and they learn through a cyclical process of inquiry and discussion.

According to the literature, in the most advanced PLCs, the total school models and replicates a cycle of inquiry to analyze student performance, identify best practices,

and share responsibility for the success of students. Instructional practices are implemented based upon experiential evidence and thoughtful analysis. In one study of successful schools,

The extent of data used to inform instruction (staff members) from growth schools more elaborately discussed the use of data to inform collaboration, guide them in making needed instructional adjustments, adjust their alignment with standards, develop intervention strategies, assess individual student progress, and develop instructional modifications (California Comprehensive Center and American Institutes for Research, 2006).

In an article which describes the three most improved schools in the Los Angeles Unified School District, “teacher teams routinely assess student progress to target deficiencies and buttress strengths” (Helfand & Sahagun, 1999).

The TELL Maryland Survey uses a series of questions to determine teacher perceptions about Instructional Practices and Support. The survey attempts to identify instructional practices and support available to Maryland teachers. The questions ask teachers to indicate agreement about whether assessment data is available and used, professional learning communities exist, supports are provided, and those supports result in improvements in student learning. The survey also asks if teachers feel they have autonomy in instructional delivery, and if students are ready to learn. The survey asks teachers to “Please rate how strongly you agree or disagree with the following statements about the instructional practices and support in your school” (The New Teacher Center, 2013). Teachers can select from a Leikert response scale “strongly disagree, somewhat

disagree, neither disagree nor agree, somewhat agree, or strongly agree” (The New Teacher Center, 2013).

Table 2.5: TELL Survey Instructional Practices and Support Construct Questions

Q9.1	Please rate how strongly you agree or disagree with the following statements about instructional practices and support in your school.
a.	State assessment data are available in time to impact instructional practices.
b.	Local assessment data are available in time to impact instructional practices.
c.	Teachers use assessment data to inform their instruction.
d.	Teachers work in professional learning communities to develop and align instructional practices.
e.	Provided supports (i.e. instructional coaching, professional learning communities, etc.) translate to improvements in instructional practices by teachers.
f.	Teachers are encouraged to try new things to improve instruction.
g.	Teachers are assigned classes that maximize their likelihood of success with students.
h.	Teachers have autonomy to make decisions about instructional delivery (i.e. pacing, materials and pedagogy).
i.	Our students come to school ready to learn.

Conclusion

The academic literature presented provides a foundation of support for the five constructs of teaching and learning conditions which are measured in this study by the Teaching, Empowering, Leading and Learning (TELL) Maryland Survey of teacher perceptions and reported as a school-level percentage of agreement. The TELL Survey is an online, confidential survey initiated by the governor to capture teachers’ perceptions about teaching and learning conditions (The New Teacher Center, 2013). This research statistically analyzed the relationship between teacher perceptions of time, teacher leadership, school leadership, professional development, instructional practices and support, as operationalized by the TELL Surveys in 2011 and 2013, and student achievement as reported by the English High School Assessment school-level aggregate

percent proficiency representing the percentage of students scoring proficient or advanced in 2011 and 2013.

Chapter Three: Methodology

Purpose

High schools across the nation are under increasing pressure to improve student performance on state assessments, as student scores are being linked to teacher and principal evaluations. “Federal law, such as *No Child Left Behind*, and federal competitive incentive programs, such as Race to the Top, the Teacher Incentive Fund, and School Improvement Grants, drive the need to effectively identify under what conditions teachers contribute to student learning”(Steele, Hamilton, & Stecher, 2010). The school leader’s quest to identify what works often takes a narrow approach to address a specific area of weakness, resulting in the purchase of disjointed or isolated programs. While a magic bullet eludes schools, leaders can learn from those who have demonstrated success by improving student achievement and closing the achievement gap between the economically disadvantaged students and their peers.

The purpose of this quantitative study was to test the hypothesis that there is a positive relationship between changes in teacher perception of the five research-based teaching and learning conditions and changes in student achievement in English. To explore the relationships between each construct of teaching and learning and student achievement on the state assessments, a path analysis was conducted. The path structure determined the relationships between teacher perception of the five teaching and learning constructs and student achievement through publicly reported variables, in the form of educator surveys school-level results and English test data for schools.

The Maryland High School Assessment in English was first established as a graduation requirement in 2009. While most high schools currently have a high

percentage of students meeting this graduation requirement by grade 12, there is variability in the percent proficient for first-time test takers. This study attempted to identify the relationships between 2011 and 2013 English High School Assessment achievement data and the constructs measured by the Teaching, Empowering, Leading and Learning (TELL) Maryland Survey also conducted in 2011 and 2013. The five constructs of teaching and learning conditions that were examined included time, teacher leadership, school leadership, professional development, and instructional practices and support as perceived by teachers and reported at the school level (Figure 3.1). Facilities and resources, community support and involvement, and managing student conduct are three additional constructs from the TELL Survey that were not included in this study.

Table 3.1: TELL Survey Core Constructs (The New Teacher Center, 2013)

Construct	Descriptor
School Leadership	The ability of school leadership to create trusting, supportive environments and address teacher concerns
Teacher Leadership	Teacher involvement in decisions that impact classroom and school practices
Professional Development	Availability and quality of learning opportunities for educators to enhance their teaching
Instructional Practices and Support	Data and support available to teachers to improve instruction and student learning
Time	Available time to plan, to collaborate, to provide instruction, and to eliminate barriers in order to maximize instructional time during the school day

The researcher created a path analysis model to examine 2011 and 2013 student achievement data and TELL survey data from the same years for the sample Maryland public high schools. The researcher analyzed whether a statistical relationship existed between the 2011 TELL survey data for each of the five teaching and learning constructs

and the student achievement results on the 2013 High School Assessments (HSA) in English.

Rationale

Achievement results for students who are economically disadvantaged have historically been low. In an attempt to address this inequity, the Thornton Commission in Maryland was charged with making “recommendations to ensure the adequacy and equity of public school funding and excellence in student performance” (MGT of America, 2008). The Annotated Code of Maryland, Education article §5-402 required a comprehensive review and evaluation of the effect of increased state aid to local school systems on student, school, and local school system performance. The scope of work identified in MSDE’s request for proposals included a “list of programs or factors that consistently produced positive results for students, schools, and school systems” (MGT of America, 2008).

A key limitation identified in the MGT evaluation was the fact that “High School Assessment (HSA) data from 2008 was (sic) not available, so the statistical analyses of the relationships between educational practices and student achievement use data from elementary and middle schools only” The three categories of best practices, including “planning and support system, aligned, individualized and inclusive instructional process, and supportive and positive school environment” cannot be generalized to include the high-school level, and the research seeks to fill this gap (MGT of America, 2008).

According to the Maryland State Department of Education, high school student achievement levels are still falling far below the 100% requirement of NCLB. In 2012 on the Algebra I HSA, economically disadvantaged students earned a score of 69.9%

compared to their peers' 83.9%. Results were similarly disappointing on the English HSA, where economically disadvantaged students had a proficiency level of 62.7%, again lower than their peers' 79.2% (MSDE, 2012). With statistical data to identify relationships between teacher perceptions of teaching and learning conditions and student achievement, schools could improve the specific elements related to time, teacher leadership, school leadership, professional development, and instructional practices and supports in an attempt to produce positive results for more students on high-stakes state assessments in English.

The methodology MGT of America study identified operational best practices as independent variables and correlated those practices to each school's percentage of proficiency gap closure as the dependent variables. "Percent proficiency gap closure is calculated by dividing the gap closure (the percent proficient in 2008 minus the percent proficient in 2004) during the period studied by the proficiency gap that existed in 2004 (the difference between 100% in the percent proficient in 2004)" (MGT of America, 2008, p. 100). These data were analyzed to determine whether combinations of best practices were related to improvement in student achievement. Best practices that were statistically related to percent gap closure based on simple correlations were included in separate multiple regression analyses to determine combinations of practices and their relationship to student achievement growth. This quantitative study of sample Maryland high schools consisted of a path analysis using 2011 and 2013 student achievement scores and the teaching and learning constructs as perceived by teachers on the 2011 and 2013 TELL Surveys.

There is a great deal of qualitative research available on professional development, teacher collaboration, and leadership, as well as the supporting operational conditions. “Available evidence about the relationship between school-based teacher learning communities and positive student outcomes is promising and consistent - but thin” (McLaughlin & Talbert, 2006). High schools are searching for instructional reform models that are comprehensive, that acknowledge the complexities of the organizational supports, and that provide multiple entry points for implementation.

Identifying the relationship between teacher perceptions of school teaching and learning conditions reported as an aggregate rate of agreement at the school level and student achievement reported as an aggregate score of percent proficient adds to the growing body of theoretical and empirical research. There are very few large-scale empirical studies exploring the association between teaching and learning conditions and student achievement, and even fewer use teacher perception as a variable. To date, work by Ladd (2009) and Johnson, Kraft, and Papay (2011) use state data and large-scale surveys to explore the connections between working conditions and student learning. The analysis by Ladd (2009) shows that teacher perceptions of teaching and learning conditions predict student achievement in mathematics, and, to a lesser degree, in reading. The Johnson, Kraft, and Papay (2011) research indicates that positive school climate conditions of teaching and learning contribute to improved student achievement. Both of these efforts use the TELL Survey data from various states to estimate the relationship of teacher perceptions of teaching and learning conditions on student learning.

Research Questions

The overarching question guiding this study is “To what extent is there a relationship between high school teacher perceptions of five teaching and learning constructs, as defined by the TELL Maryland Survey, and changes in aggregate English achievement in Maryland public high schools?”

Specifically the research sought to answer the following questions:

1. Is there a relationship between teacher perception of “sufficient time,” as operationalized by the TELL Survey, and change in English scores when controlling for prior sufficient time and prior English achievement?
2. Is there a relationship between teacher perception of “teacher leadership,” as operationalized by the TELL Survey, and change in English scores when controlling for prior teacher leadership and prior English achievement?
3. Is there a relationship between teacher perception of “school leadership,” as operationalized by the TELL Survey, and change in English scores when controlling for prior school leadership and prior English achievement?
4. Is there a relationship between teacher perception of “professional development,” as operationalized by the TELL Survey, and change in English scores when controlling for prior professional development and prior English achievement?
5. Is there a relationship between teacher perception of “instructional practices and support,” as operationalized by the TELL Survey, and change in English scores when controlling for prior instructional practices and support and prior English achievement?

Study Design

The sample population was comprised of individual high schools in southern and western Maryland. The schools were selected because they represented a range of large and small high schools that were considered to be rural or suburban. The sample was limited to southern and western Maryland schools to eliminate the impact of high poverty rates associated with urban schools. The sample cluster was further defined by the availability of data for both 2011 and 2013. Perceptual data was gathered from individual high school teachers and aggregated into a school-level percentage in eight (8) rural or suburban counties in western and southern Maryland through the TELL Survey results in 2011 and 2013. The schools included in the sample had above a 50% response rate, the threshold for public reporting, in both 2011 and 2013.

The same schools' student achievement data, comprised of the percent proficient or advanced scores, was earned by 10th grade students who took the English High School Assessment for the first time in 2011 and those who took the test for the first time in 2013. In the spring of 2011 and 2013, high school teachers responded to the online TELL Maryland survey. Those responses reported as school level rate of agreement percentages represented the teachers' perceptions of teaching and learning conditions in the specific constructs of school leadership, teacher leadership, professional development, instructional practices, and time. This nonrandom census of schools in the sample included 34 high schools, creating a sample size large enough to conduct a statistically sound correlation that reasonably represents the target population of rural and suburban Maryland high schools. There were 47 schools in the sample cluster, and seven (7) schools were excluded because they did not meet the minimum standard of 50% response

rate required for public reporting purposes, and ten (10) schools were excluded because they did not have complete data for both 2011 and 2013.

Measures

Using the aggregate percentage of students scoring proficient or advanced on the 2011 and Maryland High School Assessments in English in those same counties created a complete sample with longitudinal data. School-level student achievement data are publically available on the Maryland State Department of Education database and are reasonably representative of the target population of rural and suburban high schools in Maryland. School averages where student achievement results exceeded 95% were truncated, as the specific data points above that threshold were not made publicly available.

To collect and organize the data, the researcher used two sources. The first source included the aggregate scores for all students on each school's 2011 and 2013 High School Assessments in English. The researcher requested the 2011 High School Assessment data for each of the sample schools from the Maryland State Department of Education, as those data had been archived. The 2013 High School Assessment data for sample schools was made publicly available in the fall of 2013 on www.MDreportcard.com. The resulting database was used by the researcher to further define the sample with summary statistics, including the range and the average percent proficient scores for each high school.

English High School Assessments

The High School Assessments consist of a series of multiple choice questions, assessing students' knowledge of skills associated with Maryland's Core Learning Goals.

Throughout the state of Maryland, students take the assessment at the end of the tenth grade English course. Student scores are inferred to reflect students' level of knowledge and skills in the content area. The scores are used to classify students in terms of their level of proficiency using cut scores established by the state (MSDE, HSA: High School Assessments, 2014).

Evidence of validity is determined based on analysis of test content, analysis of internal test structure, and confirmatory factor analysis. Items are first examined during content review by teams of Maryland educators who make independent judgments about the match of the item to the standard it is intended to assess and evaluate the appropriateness for the age of the students being tested. Items that pass this strict scrutiny are forwarded for field testing. Results of the field tests further assist test creators in determining validity. Results from the English HSA for both 2011 and 2013 indicate that each sub-score is significantly positively correlated with the total scale score as well as the individual sub-scores measured. Finally, the Confirmatory Factor Analysis confirmed a model fit for each test administration (MSDE, HSA: High School Assessments, 2014).

Teaching, Empowering, Leading, and Learning (TELL) Maryland Survey

TELL Maryland 2011 and 2013 survey responses reflect teacher perceptions of the teaching and learning constructs of time, teacher leadership, school leadership, professional development, and instructional practices. The survey instrument was created by the New Teacher Center (NTC) and has been “externally validated and nationally recognized” (The New Teacher Center, 2012). The New Teacher Center (2012) survey uses the school as the unit of analyses and consists of a core set of questions that address

school conditions that include new teacher support, instructional practices and support, managing student conduct, school leadership, teacher leadership, community engagement and support, use of time, professional development, and facilities and resources. For the purposes of this study, only the five components of time, teacher leadership, school leadership, professional development, and instructional practices, those most associated with interpersonal and social constructs, were analyzed.

The TELL Maryland survey has been externally validated and found reliable as part of the MET Project supported through the Bill and Melinda Gates Foundation (Swanlund, 2011). The Swanlund analyses used data from 286,835 educators from 11 states. These analyses identify patterns in the data that provide a clear structure for the survey and confidence for interpreting the results (The New Teacher Center, 2013). The New Teacher Center conducted a factor analysis to group variables with similar characteristics and then performed a confirmatory factor analysis. The external validity testing conducted for the TELL Survey review used the Rasch Rating Scale Model to examine the “item-measure correlations, item fit, rating scale functioning, unidimensionality, and generalizability of the instrument” (The New Teacher Center, 2013). As a result, edits were made on the 2013 TELL survey to increase the statistical stability.

Reliability means that an instrument generates the same results with a similar population, and a reliable survey is expected to have similar results across settings. The external review of the TELL Maryland Survey analyzed reliability using both the Rasch model person separation reliability and Cronbach’s alpha. The Swanlund (2011) study concluded the survey is “capable of producing consistent results across participant

groups.” In Figure 3.2, the reliability analyses for TELL Maryland constructs produced Cronbach’s alpha coefficients ranging from 0.83 to 0.95. Alphas normally range between 0.00 and 1.00. The closer the Cronbach’s alpha coefficient is to 1.00, the greater the internal consistency of the items in the scale. Alpha coefficients above 0.70 are considered acceptable (George & Mallery, 2003).

Construct	Cronbach’s Alpha
Teacher Leadership	0.93
School Leadership	0.95
Professional Development	0.95
Instructional Practices and Support	0.83
Time	0.83

Table 3.2: Reliability by Construct (The New Teacher Center, 2013)

The anonymous TELL Maryland survey is administered online during a window of time where educators receive a confidential access code and complete the survey during the administration time. Results are made public for the state, district, and schools that have reached the minimum response rate threshold of 50%. For the 2013 Maryland survey, the construct of Time included 12 questions of which are on a four-point Leikert scale. School Leadership included 20 questions, all on a four-point scale. Professional Development included 12 questions on a four-point scale. Teacher Leadership included 12 questions, all on a four-point scale, and Instructional Practices and Support included nine (9) questions on a four-point scale. The summary statistics further defined this

sample population, including the range and average of school responses for each construct.

The TELL Maryland Survey used questions designed to capture detailed information about how Maryland educators view teaching and learning conditions in schools. The survey also included questions about basic demographic information, teachers' satisfaction, and teachers' career intentions. Fifty-eight percent of all educators in the state completed the survey. Although teachers' individual responses are anonymous, each response can be linked to the school where the teacher worked. Therefore, these data can be combined with the school-level assessment data from the Maryland Department of Education.

Instrumentation

The Statistical Package for the Social Sciences (SPSS), predictive analysis software, was used to perform a path analysis. "The steps of constructing and solving path diagrams are referred to collectively as path analysis, a method originally developed by the American geneticist Sewal Wright as early as 1920, but only extensively applied in the social and behavioral sciences during the last few decades" (Loehlin, 2004, p. 8).

Path analysis is typically used for a multivariate analysis, when there are multiple variables and multiple equations. "It may also have special usefulness in sociology and problems involving the decomposition of the dependent variable or those in which successive experiences of a cohort are measured" (Duncan, 1966). "According to Bollen (2005), variables are identified using capital letters, causal relationships are identified with a straight one-headed arrow, and a curved two-headed arrow indicates a simple correlation (pp.3-4).

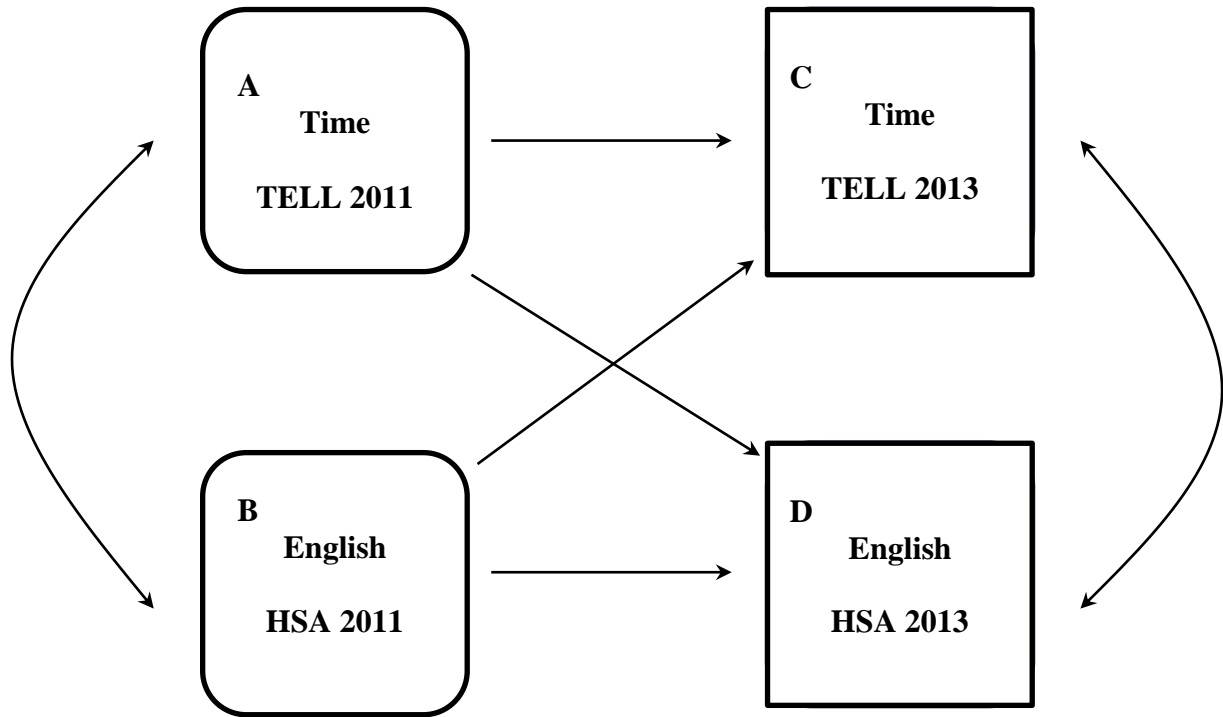


Figure 3.1: Path model of the relationship between Time and student achievement on the English High School Assessment

Path analysis refers to “a general method for decomposing effects into their components by the systematic application of ordinary least squares regression” (Alwin & Hauser, 1975). Figure 3.2 illustrates the path analysis for the relationships between school-level teaching and learning constructs and aggregate student achievement. The path analysis conducted a simple correlation between the 2011 TELL survey sufficient time construct (A) and the 2011 aggregate English Maryland High School Assessments (B), as well as a correlation between the 2013 TELL survey sufficient time construct (C) and the 2013 aggregate English score on the Maryland High School Assessments (D). This relationship is represented by a two-headed curved arrow.

Next, the relationship between the construct of sufficient time between 2011 (A) and 2013 (C) was analyzed. “The essential feature for the use of a causal arrow in a path diagram is the assumption that a change in the variable at the tail of the arrow will result in a change in the variable at the head of the arrow, all else being equal” (Loehlin, 2004, p. 4). The same analysis was completed to determine the relationship between percent proficient on the English High School Assessment in 2011(B) and percent proficient on the English High School Assessment in 2013(D). Then, the relationship between English achievement in 2011(B) and the construct of sufficient time in 2013 (C) was analyzed. Finally, the relationship between sufficient time in 2011(A) and English achievement in 2013(D) was analyzed for predictability.

The analysis represented in Figure 3.1 was repeated five times, replacing (A) with the remaining teaching and learning constructs of teacher leadership, school leadership, professional development, instructional practices and support, and time as measured by the 2011 TELL survey and replacing (C) with the same constructs as measured by the 2013 TELL survey. A structural equation model was written for each analysis. “An analysis that uses structural equation models has several components. These include (a) model specification, (b) implied moment matrix, (c) identification, (d) estimation, (e) model fit, and (f) respecification” (Bollen, 2005). The same equations were used to examine the relationship between teacher perceptions of teaching and learning constructs and the school-level aggregate percent proficient scores on the English High School Assessment.

Summary of Methodology

The purpose of this quantitative approach was to develop a more thorough understanding of teacher perceptions of the teaching and learning conditions in Maryland high schools and of the relationship between those perceptions and student achievement results in English. The research design used valid and reliable survey data and state assessments as indicators to identify potential relationships through descriptive statistics and path analysis.

IRB, Human Subjects, and Confidentiality

The 2013 TELL Maryland survey results and the 2013 Maryland High School Assessment data for algebra and English are available in the public domain, and measures were already taken to preserve confidentiality. The researcher submitted a detailed application regarding this study to Maryland University's Institutional Review Board (IRB). The researcher sought approval from the IRB before beginning the process of data analysis. The name of the school system and schools did not need to remain confidential because both sets of school-level data are publically available.

Limitations

Limitations in observations may occur in that the observer, "... may affect the situation being observed in unknown ways, program staff and participants may behave in some atypical fashion when they know they are being observed, and the selective perception of the observer may distort the data" (Patton, 2002, p. 306). The sample involved participants who were part of a specific culture in eight (8) western and southern Maryland counties and may be limited based on the selected population.

It is possible that some of the results of this study may be applicable to other school systems in the state and country. Even though causality, the most stringent research standard, cannot easily be established outside a controlled laboratory setting, the findings of this study may identify school practices that positively impact student learning in the context of supportive school conditions.

Aggregate scores limit researchers because they do not take into account individual variations among individuals or even systematically among aggregate units. “Choice of tests, timing, rates of exclusion of students with special needs...and rules for the use of accommodations for students with disabilities or limited English proficiency all vary systematically” among different test administrations (Koretz, 2000). Additionally, with a 58% statewide response rate on the TELL Maryland Survey, there is no way to determine how those who responded represent the demographics of the individual schools.

Chapter Four: Results

Data analysis techniques employed to answer the study's five research questions included descriptive statistics and path analysis. The Statistical Package for the Social Sciences (SPSS) software package was utilized to perform the analysis of descriptive statistics and the Structural Equation Modeling Software (EQS) was utilized to conduct the path analysis.

Descriptive Statistics

A descriptive analysis was done first on the data in order to assess normality, possible outliers, and the appropriateness of doing the path analysis. Descriptive statistics on the variables include a summary of the data which includes the range, the median, and the Standard Deviation for each variable. The reader may also refer to Chapter 3 for the descriptions of the sample population of schools, the instrumentation of the TELL Survey, and the English High School Assessments. The distributions of the following continuous variables are described for both 2011 and 2013: English High School Assessments and Response Rates, and the TELL Survey Constructs of Time, Teacher Leadership, School Leadership, Professional Development, and Instructional Practices and Support.

Table 4.1: Means, Standard deviations and ranges for all of the variables examined

Variable	N	Minimum	Maximum	Mean	Standard Deviation
English 2011	34	58.70	93.90	82.02	9.71
Response Rates 2011	34	52.94	100.00	78.66	13.67
Time 2011	34	53	89	68	.09
Teacher Leadership 2011	34	69	98	80	.08
School Leadership 2011	34	72	100	83	.06
Professional Development 2011	34	54	91	73	.08
Instructional Practices and Support 2011	34	65	88	76	.05
English 2013	34	61.20	95.00	82.06	9.55
Response Rates 2013	34	52.63	100.00	82.57	16.44
Time 2013	34	54	87	67	.08
Teacher Leadership 2013	34	56	98	77	.10
School Leadership 2013	34	59	99	81	.09
Professional Development 2013	34	48	94	71	.09
Instructional Practices and Support 2013	34	61	93	74	.07

As shown in Table 4.1, the mean response rate for TELL Survey participants in 2011 was 78.66% with a Standard Deviation (SD) of 13.67 and in 2013 the mean rose to 82.57% with a SD of 16.44. As stated in Chapter Three, the minimum standard of a 50% response rate was required for public reporting purposes. According to the descriptive statistics, the mean for student scores on the English High School Assessment in 2011 was 82.02% with a SD of 9.71, and in 2013 the mean was 82.06% with a SD of 9.55, remaining relatively stable.

The mean for each of the TELL Survey variables decreased between 2011 and 2013. The Time variable is defined by the TELL Survey as “Available time to plan, collaborate and provide instruction and barriers to maximizing time during the school day” (The New Teacher Center, 2013). The survey construct for the Time variable consisted of an aggregate score of teachers’ perceptions about adequate class size, time for collaboration, minimal interruptions, sufficient non-instructional time, reduced administrative paperwork, sufficient instructional time, and protection from duties that interfere with the primary role of teaching. The mean for the variable of Time in 2011 was 68% with a SD of .09 and 67% with a SD of .08 in 2013. The Time variable represented the lowest overall mean of all five survey constructs.

The Teacher Leadership variable had a mean of 80% with a SD of .08 in 2011 and a mean of 77% with a SD of .10, falling slightly in 2013. The TELL Survey defined Teacher Leadership as “Teacher involvement in decisions that impact classroom and school practices” (The New Teacher Center, 2013). This survey construct asked teachers to respond with agreement to prompts regarding teachers being recognized as experts, trusted to make sound professional decisions, relied upon to make decisions about

educational issues, and encouraged to participate in leadership roles, as well as having an effective process for making group decisions and solving problems, taking steps to solve problems, and agreeing that teachers are effective leaders with respect to each participating school.

In 2011, the School Leadership variable mean was 83% with a SD of .06, and it dipped slightly to 81% with a SD of .10 in 2013. School Leadership is defined by the TELL Survey as “The ability of school leadership to create trusting, supportive environments and address teacher concerns” (The New Teacher Center, 2013). This survey construct consisted of the aggregate score of TELL Survey responses for participating schools on questions that included the following: faculty and staff have a shared vision, there is an atmosphere of trust and mutual respect, teachers feel comfortable raising important issues and concerns, leadership consistently supports teachers, teachers are held to high standards for delivering instruction, school leadership facilitates using data to improve student learning, teacher performance is assessed objectively, teachers receive feedback that can help them improve teaching, teacher evaluation procedures are consistent, the School Improvement Team provides effective leadership, and faculty are recognized for accomplishments.

In addition, the TELL Survey asked teachers to assess whether school leadership makes a sustained effort to address teacher concerns about: leadership issues, facilities and resources, the use of time in my school, professional development, teacher leadership, community support and involvement, management of student conduct, instructional practices and support, and new teacher support. The School Leadership variable represented the highest overall mean in both 2011 and 2013.

The Professional Development variable fell slightly from 73% with a .08 SD in 2011 to 71% with a .09 SD in 2013. The TELL Survey defined Professional Development as “Availability and quality of learning opportunities for educators to enhance their teaching” (The New Teacher Center, 2013). This variable consisted of the aggregate score of the TELL Survey questions which represented teachers’ perceptions of the following regarding professional development: sufficient resources available, appropriate amount of time allotted, data-driven offerings, aligned opportunities with the School Improvement Plan, differentiation to meet individual needs, deepened content knowledge, sufficient instructional technology training, encouragement to reflect on professional practice, provided follow-up, ongoing collaborative opportunities, evaluation and communicated results, enhancement of ability to implement instructional strategies that meet diverse learning needs, and enhancement of teachers’ abilities to improve student learning.

The fifth and final variable, Instructional Practices and Support, had a mean of 76% with a SD of .05 in 2011 and fell slightly to a mean of 74% with a SD of .07 in 2013. Instructional Practices and Support is defined by the TELL Survey as “Data and supports available to teachers to improve instruction and student learning” (The New Teacher Center, 2013). This variable consisted of aggregate teacher perceptions about existing instructional practices and support as defined by the TELL Survey. The survey utilized question items that addressed the following: state and local assessment data are available in time to impact instructional practice, teachers use of assessment data to inform instruction, aligned with Common Core Standards, professional learning communities develop and align instructional practices, supports provided translate to

improvements in instructional practice, teachers are encouraged to try new things to improve instruction, classes are assigned to maximize the teachers' likelihood of success with students, and teachers have autonomy to make decisions about instructional delivery.

Correlations

Correlations were computed among the 2011 variables of English High School Assessment, TELL Survey response rates, and the five TELL Survey constructs of time, teacher leadership, school leadership, professional development, and instructional practices on data for the participating 34 high schools. The results in Table 4.2 suggest that 8 correlations were statistically significant. There was a positive correlation between time and teacher leadership, $r = .40$, $p = \leq .05$, $n = 34$ and between time and school leadership, $r = .50$, $p = \leq .01$, $n = 34$. There were positive correlations between teacher leadership and school leadership, $r = .90$, $p = \leq .01$, $n = 34$, between teacher leadership and professional development, $r = .38$, $p = \leq .05$, $n = 34$, and between teacher leadership and instructional practices and support, $r = .62$, $p = \leq .01$, $n = 34$. Additionally, there were positive correlations between school leadership and professional development, $r = .49$, $p = \leq .01$, $n = 34$, and between school leadership and instructional practices $r = .66$, $p = \leq .01$, $n = 34$. Another significant correlation existed between professional development and instructional practices, $r = .57$, $p = \leq .01$, $n = 34$. The correlations between the 2011 English HSA achievement and the TELL Survey response rate with other TELL Survey measures were non-significant. In general, the results suggest that teachers who

responded to the TELL Survey with a high positive perception one area tended to rate themselves and their school high in other areas.

Table 4.2: 2011 Correlations

		English 2011	Response 2011	Time 2011	Teacher Leadership 2011	School Leadership 2011	Professional Developmen t 2011	Instructional Practices and Support 2011
English 2011	Pearso n Correla tion	1	-.13	-.19	.04	-.01	-.10	.20
	Sig. (2- tailed)		.47	.27	.81	.94	.58	.27
	N	34	34	34	34	34	34	34
Response 2011	Pearso n Correla tion	-.13	1	.02	-.03	-.04	.02	-.02
	Sig. (2- tailed)	.47		.92	.88	.81	.90	.92
	N	34	34	34	34	34	34	34
Time 2011	Pearso n Correla tion	-.19	.02	1	.40*	.50**	.29	.13
	Sig. (2- tailed)	.27	.92		.02	.00	.09	.48
	N	34	34	34	34	34	34	34
Teacher Leadership 2011	Pearso n Correla tion	.04	-.03	.40*	1	.90**	.38*	.63**
	Sig. (2- tailed)	.81	.88	.02		.00	.03	.000
	N	34	34	34	34	34	34	34
School Leadership 2011	Pearso n Correla tion	-.01	-.04	.50* *	.90**	1	.49**	.66**
	Sig. (2- tailed)	.94	.81	.00	.00		.00	.00
	N	34	34	34	34	34	34	34

		English 2011	Response 2011	Time 2011	Teacher Leadership 2011	School Leadership 2011	Professional Development 2011	Instructional Practices and Support 2011
Professional Development 2011	Pearson	-.10	.02	.29	.38*	.49**	1	.56**
	Correlation							
	Sig. (2-tailed)	.58	.90	.09	.03	.00		.00
	N	34	34	34	34	34	34	34
Instructional Practices and Support 2011	Pearson	.20	-.02	.13	.62**	.66**	.56**	1
	Correlation							
	Sig. (2-tailed)	.27	.92	.48	.00	.00	.00	
	N	34	34	34	34	34	34	34
*. Correlation is significant at the 0.05 level (2-tailed). **. Correlation is significant at the 0.01 level (2-tailed).								

Correlations were also computed among the 2013 variables of English High School Assessment, TELL Survey response rates, and the five TELL Survey constructs of time, teacher leadership, school leadership, professional development, and instructional practices on data for the participating 34 high schools. The results in Table 4.3 suggest that 11 correlations were statistically significant. There was a strong positive correlation between 2013 English HSA achievement and instructional practices, $r = .37$, $p \leq .05$, $n = 34$. There was a positive correlation between time and teacher leadership, $r = .59$, $p \leq .01$, $n = 34$, between time and school leadership, $r = .55$, $p \leq .01$, $n = 34$, between time and professional development, $r = .44$, $p \leq .01$, $n = 34$, and between time and instructional practices, $r = .47$, $p \leq .01$, $n = 34$. There were positive correlations between teacher leadership and school leadership, $r = .94$, $p \leq .01$, $n = 34$, between teacher leadership and professional development, $r = .57$, $p \leq .01$, $n = 34$, and between teacher leadership and instructional practices and support, $r = .77$, $p \leq .01$, $n = 34$.

Additionally, there were positive correlations between school leadership and professional development, $r = .62$, $p = \leq .01$, $n = 34$, and between school leadership and instructional practices $r = .80$, $p = \leq .01$, $n = 34$. Another significant correlation existed between professional development and instructional practices, $r = .70$, $p = \leq .01$, $n = 34$. As was seen in the 2011 correlations, the results suggest that teachers who responded to the TELL Survey with a high positive perception one area also tended to rate themselves and their school high in other areas.

Table 4.3: 2013 Correlations

		English 2013	Response 2013	Time 2013	Teacher Leadership 2013	School Leadership 2013	Professional Development 2013	Instructional Practices and Support 2013
English 2013	Pearson Correlation	1	-.28	.14	.27	.34	.12	.37*
	Sig. (2- tailed)		.12	.43	.13	.05	.50	.03
	N	34	34	34	34	34	34	34
Response 2013	Pearson Correlation	-.28	1	.11	-.11	-.19	.19	-.04
	Sig. (2- tailed)	.12		.53	.54	.29	.30	.84
	N	34	34	34	34	34	34	34
Time 2013	Pearson Correlation	.14	.11	1	.59**	.55**	.44**	.47**
	Sig. (2- tailed)	.43	.53		.000	.00	.01	.01
	N	34	34	34	34	34	34	34
Teacher Leadership 2013	Pearson Correlation	.27	-.11	.59* *	1	.94**	.57**	.77**
	Sig. (2- tailed)	.13	.54	.00		.00	.00	.00
	N	34	34	34	34	34	34	34
School Leadership	Pearson Correlation	.34	-.19	.55* *	.94**	1	.62**	.80**
	Sig. (2- tailed)							
	N							

		English 2013	Response 2013	Time 2013	Teacher Leadership 2013	School Leadership 2013	Professional Development 2013	Instructional Practices and Support 2013
2013	n Sig. (2-tailed) N	.052 34	.288 34	.001 34	.000 34		.000 34	.000 34
Professional Development 2013	Pearson Correlation Sig. (2-tailed) N	.12 .50 34	.19 .30 34	.44* .01 34	.57** .00 34	.62** .00 34	1 34	.70** .00 34
Instructional Practices and Support 2013	Pearson Correlation Sig. (2-tailed) N	.37* .03 34	-.04 .84 34	.47* .01 34	.77** .00 34	.80** .00 34	.70** .00 34	1 34
*. Correlation is significant at the 0.05 level (2-tailed).								
**. Correlation is significant at the 0.01 level (2-tailed).								

Path Analyses

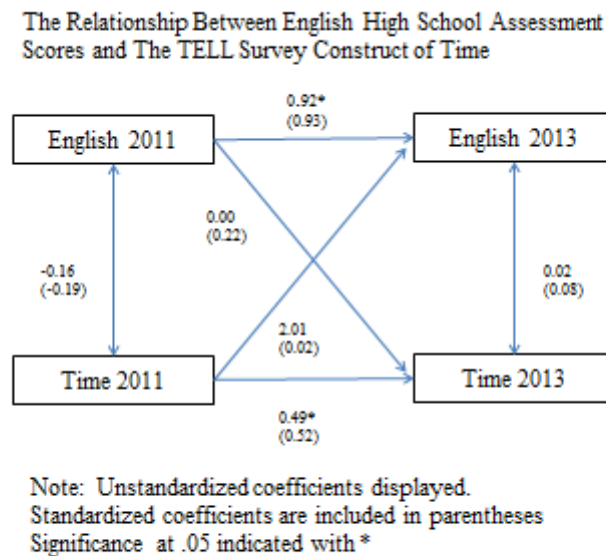
The following discussion outlines data analysis results for each research question through five individual path analyses created to ascertain the relationship between student achievement on the English High School Assessment in 2011 and each TELL Survey construct in 2011 as independent variables and student achievement on the English High School Assessment in 2013 and each TELL Survey construct in 2013 as the dependent variables.

Research Question 1:

Is there a relationship between teacher perception of “sufficient time,” as operationalized by the TELL Survey, and change in English scores when controlling for prior sufficient time and prior English achievement?

Results of the path analysis depicted in Figure 4.1 indicated a strong and statistically significant relationship of $b = .93$ between the percentage of students scoring at or above proficient on the English High School Assessment in 2011 and the percentage of students scoring at or above proficient on the English High School Assessment in 2013. Another statistically significant relationship of $b = 0.52$ was determined between the variables of Time in 2011 and 2013. No other relationships in the path analysis were statistically significant. Therefore, there was not a relationship between “sufficient time,” as operationalized by the TELL Survey, and English achievement when controlling for prior “sufficient time” and prior English achievement.

Figure 4.1: The Relationship between English High School Assessment Scores and the TELL Survey Construct of Time

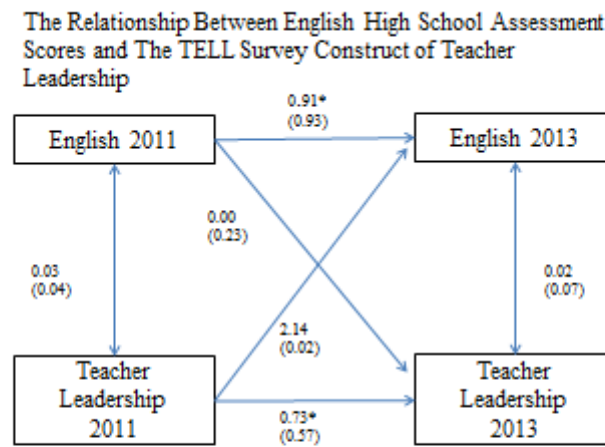


Research Question 2:

Is there a relationship between teacher perception of “teacher leadership,” as operationalized by the TELL Survey, and change in English scores when controlling for prior teacher leadership and prior English achievement?

Results of the path analysis depicted in Figure 4.2 indicated a similar strong and statistically significant relationship of $b = .93$ between the percentage of students scoring at or above proficient on the English High School Assessment in 2011 and the percentage of students scoring at or above proficient on the English High School Assessment in 2013. Another statistically significant relationship of $b = 0.57$ was determined between the variables of Teacher Leadership in 2011 and Teacher Leadership in 2013. No other relationships in the path analysis were statistically significant. Therefore, there was not a relationship between “teacher leadership,” as operationalized by the TELL Survey, and English achievement when controlling for prior “teacher leadership” and prior English achievement.

Figure 4.2: The Relationship between English High School Assessment Scores and the TELL Survey Construct of Teacher Leadership



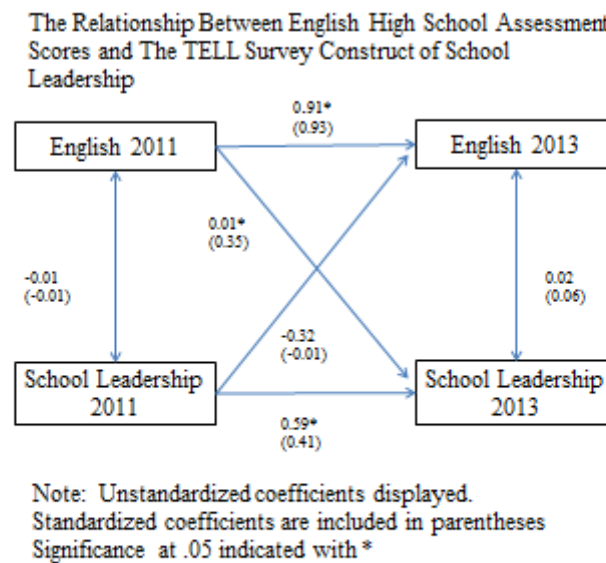
Research Question 3:

Is there a relationship between teacher perception of “school leadership,” as operationalized by the TELL Survey, and change in English scores when controlling for prior school leadership and prior English achievement?

Results of the path analysis depicted in Figure 4.3 indicated the same strong and statistically significant relationship of $b = .93$ between the percentage of students scoring at or above proficient on the English High School Assessment in 2011 and the percentage of students scoring at or above proficient on the English High School Assessment in 2013. Another statistically significant relationship of $b = 0.41$ was determined between the variables of Teacher Leadership in 2011 and Teacher Leadership in 2013. One other relationship was statistically significant at $b = 0.35$ between English scores in 2011 and teacher perceptions of School Leadership in 2013. No other relationships in the path

analysis were statistically significant. Therefore, there was not a causal relationship between “school leadership,” as operationalized by the TELL Survey, and English achievement when controlling for prior “school leadership” and prior English achievement.

Figure 4.3: The Relationship between English High School Assessment Scores and the TELL Survey Construct of School Leadership



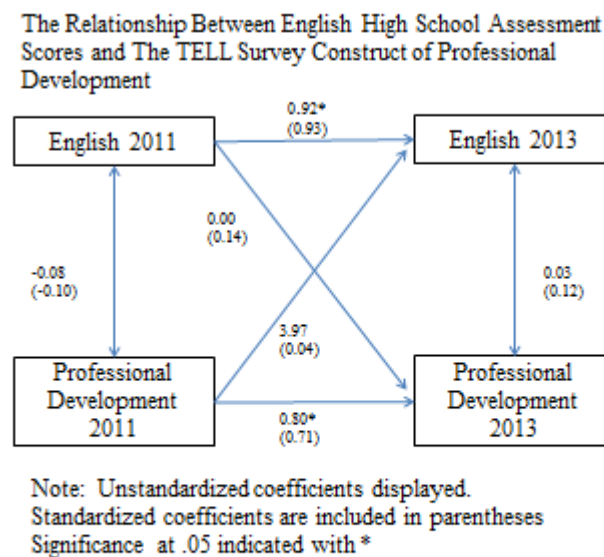
Research Question 4:

Is there a relationship between teacher perception of “professional development,” as operationalized by the TELL Survey, and change in English scores when controlling for prior professional development and prior English achievement?

Results of the path analysis depicted in Figure 4.4 again indicated a strong and statistically significant relationship of $b = 0.93$ between the percentage of students scoring at or above proficient on the English High School Assessment in 2011 and the percentage of students scoring at or above proficient on the English High School

Assessment in 2013. Another statistically significant relationship of $b = 0.71$ was determined between the variables of Professional Development in 2011 and Professional Development in 2013. No other relationships in the path analysis were statistically significant. Therefore, there was not a relationship between “professional development,” as operationalized by the TELL Survey, and English achievement when controlling for prior “professional development” and prior English achievement.

Figure 4.4: The Relationship between English High School Assessment Scores and the TELL Survey Construct of Professional Development

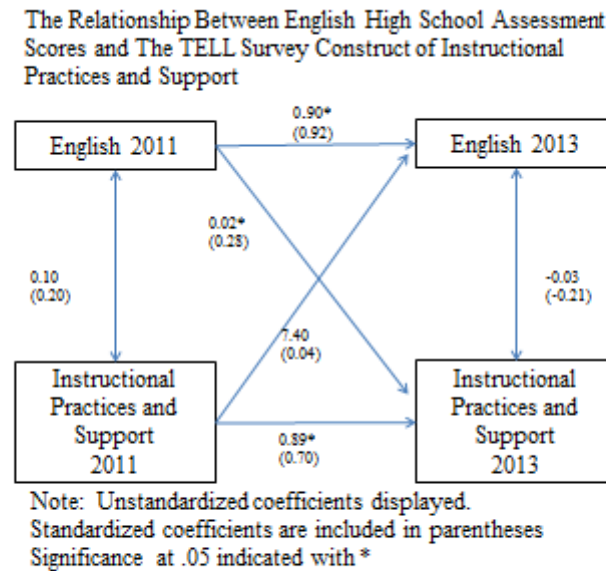


Research Question 5:

Is there a relationship between teacher perception of “instructional practices and support,” as operationalized by the TELL Survey, and change in English scores when controlling for prior instructional practices and support and prior English achievement?

Results of the path analysis depicted in Figure 4.5 again indicated a lesser, but still strong and statistically significant relationship of $b = 0.92$ between the percentage of students scoring at or above proficient on the English High School Assessment in 2011 and the percentage of students scoring at or above proficient on the English High School Assessment in 2013. Another strong and statistically significant relationship of $b = 0.70$ was determined between the variables of Instructional Practices and Support in 2011 and Instructional Practices and Support in 2013. Another relationship of $b = 0.28$ between English scores in 2011 and teacher perceptions of Instructional Practices and Support in 2013 demonstrated that success on the English assessment in 2011 led to positive feelings about the Instructional Practices and Support in 2013. No other relationships in the path analysis were statistically significant. Therefore, there was not a causal relationship between “instructional practices and support,” as operationalized by the TELL Survey, and English achievement when controlling for prior “instructional practices and support” and prior English achievement.

Figure 4.5: The Relationship between English High School Assessment Scores and the TELL Survey Construct of Instructional Practices and Support



Data Analysis Summary

There was no support for the hypothesis that the five TELL Survey constructs of Time, Teacher Leadership, School Leadership, Professional Development, and Instructional Practices and Support were related to student achievement on the English High School Assessment. There is a strong and statistically significant relationship between student achievement on the English High School Assessment in 2011 and 2013, and a lesser, but still statistically significant relationship between each of the TELL Survey variables over time as measured in 2011 and 2013. There is a relationship between student achievement on the 2011 English High School Assessment and teacher perceptions of both School Leadership and Instructional Practices in 2013.

Chapter Five: Discussion

Research Question One

The TELL Survey construct of sufficient time was characterized by teacher perceptions about the extent to which class sizes were reasonable to meet the needs of all students and whether there was time available to collaborate with other teachers. Teachers assessed whether instruction occurred with minimal interruptions, the non-instructional time was sufficient, and if efforts were made to reduce routine paperwork. Teachers reported whether they believed they had sufficient instructional time to meet the needs of all learners and that efforts were made to reduce additional duties which may interfere with instruction.

According to the path analysis conducted, survey responders in sample schools who indicated a positive perception about having sufficient time for instruction did not see corresponding increases in student achievement on the English HSA. Likewise, survey responders who indicated a negative perception about sufficient time did not see corresponding decreases in student achievement in English. This result is inconsistent with existing literature about the positive effects of time on student achievement. However, in many of the qualitative case studies reviewed, time was only one part of a more complex plan designed to improve student achievement.

Several of the case studies presented by the National Center on Time and Learning (NCTL) acknowledge that time alone will not lead to substantive change. Success in student achievement depended greatly on what the additional time was used for and how it was supported. Additional time, taken in isolation, did not create the improvement in achievement at Clarence Edwards Middle School in Massachusetts.

“While (Expanded Learning Time) ELT has been a primary driver of change and results at the Edwards, there are other essential components of the school’s turnaround: strong leadership, building teacher effectiveness, a school-wide focus on data-driven instruction, and a culture of professional collaboration” (Britt & Raine, N.D.).

Additionally, the majority of the case studies reviewed in Chapter Two occurred in schools that were initially identified as low-performing, and additional time was part of a larger initiative to increase student performance on state assessments. The Clarence Edwards Middle School started with a mean score of 40% on the Massachusetts Comprehensive Assessment in eighth grade English (Britt & Raine, N.D.). Likewise, Tumbleweed Elementary School began their reform with 25% of students reaching proficiency on the California Standards Test in English Language Arts (Chan, N.D.). The sample schools in this quantitative study had 2011 English High School Assessment (HSA) scores ranging from 59% to 94%, with a mean of 82% and 2013 English HSA scores ranging from 61% to 95%, with a mean of 82%. The sample schools in this study had less room for improvement than many of the schools studied by NCTL.

One interesting finding in the data analysis related to the first research question regarding sufficient time was in the correlations between survey constructs. In 2011, the construct of sufficient time had a strong correlation with the construct of teacher leadership ($r = .40$, $p = \leq .05$, $n = 34$) and, to a lesser extent, with school leadership ($r = .50$, $p = \leq .01$, $n = 34$). The 2011 data analysis revealed that teachers with a positive perception of time also had a positive perception of both teacher and school leadership. In 2013, this alignment of teacher perceptions expanded to include every other construct measured. In general, teachers with positive perceptions about sufficient time also had

positive perceptions about teacher leadership ($r = .99$, $p = \leq .01$, $n = 34$), school leadership ($r = .55$, $p = \leq .01$, $n = 34$), professional development ($r = .44$, $p = \leq .01$, $n = 34$) and instructional practices ($r = .47$, $p = \leq .01$, $n = 34$).

Finally, the TELL Survey construct of sufficient time had the lowest overall mean of all survey constructs with a 68% in 2011 and 67% in 2013. While this was not the focus of the study, it may be an important exercise for each participant school to examine the individual questions under this construct to determine why participants had a more negative perception of sufficient time, relative to the other constructs. This finding is consistent with the research, particularly as providing sufficient time is a challenge for effective professional development. Finding time for job-embedded professional learning is one of the most frequently cited challenges with implementing change in education (Bill & Melinda Gates Foundation, 2011).

Research Question Two

The TELL Survey construct of teacher leadership was characterized by teacher perceptions about the extent to which teachers were regarded as educational experts, trusted to make sound decisions, accepted leadership roles, and had effective processes for making group decisions and problem solving. According to the path analysis conducted, survey responders in sample schools who indicated a positive perception about teacher leadership did not see corresponding increases in student achievement on the English HSA. Likewise, survey responders who indicated a negative perception about teacher leadership did not see corresponding decreases in student achievement in English.

This result is inconsistent with existing literature about the positive effects of teacher leadership on student achievement. As shared in Chapter Two, Leithwood and Riehl (2005) found teacher leaders improved student learning by promoting a shared vision and acceptance of group goals, strengthening culture, and developing people through individual support and intellectual stimulation. Marks and Louis (1997) found teacher participation in site-based governance was related to teacher quality and student performance. Marks and Printy (2003) concluded student achievement and teaching improved when teachers shared instructional leadership with principals and took on transformational leadership roles.

Research Question Three

The TELL Survey construct of teacher leadership was characterized by teacher perceptions about the existence of shared vision, trust and respect, comfort level in raising issues, support for teachers, high standards for instructional delivery, an expectation that teachers use data to improve instruction, objective evaluation and feedback, a school improvement team, teacher recognition, and clear expectations for all audiences.

According to the path analysis conducted, survey responders in sample schools who indicated a positive perception about school leadership did not see corresponding increases in student achievement on the English HSA. Likewise, survey responders who indicated a negative perception about school leadership did not see corresponding decreases in student achievement in English. This result is inconsistent with existing literature about the positive effects of school leadership on student achievement. As shared in Chapter Two, “there is not a single documented case of a school successfully

turning around its pupil achievement trajectory in the absence of talented leadership” (Leithwood, Day, Sammons, Harris, & Hopkins, 2006, p. 5).

While the data analysis did not support the hypothesis that school leadership had a relationship with student achievement, there was a significant relationship $b = 0.01$ at the 0.05 level between 2011 English HSA proficiency levels and teacher perceptions of school leadership two years later in 2013. When students did well on an English assessment, teacher perceptions of school leadership also generally increased, two years later. This is interesting because the data would suggest that success leads to positive perceptions of leadership, but positive perceptions of leadership do not lead to improved student success.

Most studies that examine the relationship between school leadership and academic achievement are cross-sectional with ratings of school leadership and academic achievement obtained concurrently. In cross-sectional studies it is impossible to determine if ‘good’ school leadership results in better achievement or vice versa. Therefore, the findings from the path model are important because they suggest that perceptions of “good” school leadership may result from increasing student achievement and not vice versa.

Research Question Four

On the TELL Survey, teachers were asked whether sufficient resources were available, offerings were differentiated and follow-up was provided. They were asked if they had sufficient time to work with colleagues and whether the professional development was evaluated and communicated to teachers. The questions asked if time

was provided and if offerings were data driven, aligned with the School Improvement Team, and focused on student learning.

According to the path analysis conducted, survey responders in sample schools who indicated a positive perception about professional development did not see corresponding increases in student achievement on the English HSA. Likewise, survey responders who indicated a negative perception about professional development did not see corresponding decreases in student achievement in English. This result is inconsistent with existing literature about the positive effects of professional development on student achievement. As shared in Chapter Two, “studies that had more than 14 hours of professional development showed a positive and significant effect on student achievement from professional development” (Yoon, Duncan, Lee, Scarloss, & Shapley, 2007, p. iv.Summary).

Part of the difficulty definitively connecting professional development with student achievement is due to the fact that it is indirect. Teachers learn something, presume to use it, and then researchers attempt to measure the impact on student learning. There are so many confounding variables in that exchange, each of which must be scientifically controlled for in a research study. Experts in the field concurred that “few rigorous studies address the effect of professional development on student achievement” (Borko, 2004; Clewell, Campbell, & Perlman, 2004; Kennedy, 1998; Killion, 1999; Loucks-Horsley & Matsumoto, 1999; Supovitz, 2001). The review concluded with the recognition that there is “a shortage of high-quality professional development programs” and a call to “find future studies to more fully address professional development’s direct

effect on teachers and its indirect effect on students” (Yoon, Duncan, Lee, Scarloss, & Shapley, 2007).

Research Question Five

The TELL Survey attempted to identify instructional practices and support available to Maryland teachers. The questions asked teachers to indicate agreement about whether state and local assessment data were available and used, whether professional learning communities existed, and whether supports were provided, and if those supports resulted in improvements in student learning. The survey also asked if teachers felt they had autonomy in instructional delivery and if students were ready to learn.

Again, the result was inconsistent with existing literature about the positive effects of instructional practices and supports on student achievement. According to a meta-analysis, “professional teaching practices have an enormous impact on student achievement” (Marzano R., 2003). However, according to the path analysis conducted, survey responders in sample schools who indicated a positive perception about instructional practices and supports did not see corresponding increases in student achievement on the English HSA. Likewise, survey responders who indicated a negative perception about instructional practices and supports did not see corresponding decreases in student achievement in English.

While the data analysis did not support the hypothesis that instructional practices and supports had a relationship with student achievement, there was a significant relationship $b = 0.02$ at the 0.05 level between 2011 English HSA proficiency levels and teacher perceptions of instructional practices and supports two years later in 2013. When students did well on an English assessment, teacher perceptions of instructional practices

and supports also generally increased, two years later. As was the case with school leadership, the data would suggest that student success leads to positive perceptions of instructional practices and supports, but positive perceptions of instructional practices and supports do not lead to improved student success.

Assumptions and Limitations

The sample size may have caused some error in the model due to the fact that only 34 high schools in western Maryland meeting the researcher's criteria, which may have limited the ability to detect significant relationships. It is important to note, however, that significant relationships were found for both school leadership and instructional practices and supports, so low power may not totally explain the lack of significant results. Increasing the sample size to represent more of the total population may reduce any error and would increase to researcher's power to detect effects. Also, using aggregate scores to define each of the constructs may have caused unintentional error. Using the actual percentages on each question of the construct as a separate path in the model may have provided greater variability in the score distribution. Creating a model that includes more pertinent variables may have permitted a closer analysis.

The major limitation in this study was in the lack of variability of the English HSA score distribution because the range was so small. New assessments have been adopted by Maryland, and the range of scores is likely to be greater, as high schools are in various stages of implementing the Common Core State Standards. Baseline data will be available with the first administration of the test in 2014-15.

Finally, one cannot ignore the political and climate change that has occurred over the past three years, with the adoption of new state standards and a new state assessment,

and with considerable pressure from district offices to stop focusing on HSA and start focusing on the new assessments. These factors of change most definitely impacted teacher perceptions, specifically with respect to time, as they worked to learn new standards, new assessments, and a new observation/evaluation system.

In order to further examine the relationship between TELL Survey constructs and student achievement, one could disaggregate the constructs into raw question percentages and potentially have more variability. Revising the initial path analysis model by deconstructing the variables into separate coefficients and running the path analysis a second time may elicit different results. As is consistent with path analysis, the next step would be to discard any variables that do not support the model. If none of the variables support the model, a researcher could revise the model to include and control for more potentially confounding variables inherent in the study of humans, such as the demographics of the sample populations or economic indicators.

Implications of the Findings

Perhaps the most significant finding of this study is that among the five variables measuring teacher perceptions of teaching and learning, the percent agreement for sufficient time was considerably lower than any of the other four variables. This finding is consistent with the literature base about time and student achievement. Time for instruction and time for professional development are consistently mentioned as barriers to student achievement. Policy makers and schools should attend to the fact that teachers are reporting that they do not have sufficient time to educate all students or engage in job-embedded professional development. In general, teachers perceive school climate as

positive, yet only 68% in 2011 and 67% in 2013 feel they have sufficient time. All other constructs in 2011 range from 73% for Professional Development, which includes a question about time, to 83% for School Leadership. “Finding time for job-embedded professional learning is one of the most frequently cited challenges with implementing change in education” (The Bill and Melinda Gates Foundation, 2010b).

This study adds to the field of knowledge about teacher perceptions as related to time, school leadership, teacher leadership, professional development, and instructional practices and support. While results of this study did not fully accord with the literature used to create the theoretical model, this inconsistency may have resulted due to the fact that instrumentation gathered teacher perceptions of school culture variables, rather than actual implementation of a particular school culture element. Much of the existing research about the teaching and learning constructs that define and measure school culture is descriptive rather than quantitative. This quantitative research used a path analysis methodology that could be refined in future research to isolate individual constructs and add additional variables to find the best model fit for each of the five teaching and learning constructs. Future research could combine measures of teacher perception with additional measures of the direct effect of time, teacher leadership, school leadership, professional development or instructional practices and support.

One statistically significant finding from the path model is the relationship between school leadership and student achievement. This data from this multi-year analysis suggests that perceptions of “good” school leadership may result from increasing student achievement and not vice versa. The literature consistently supports the concept that school leadership is an important factor in student achievement, yet, in this path

model, student success on the English HSA resulted in more positive teacher perceptions about school leadership. In this analysis, when students are successful, teachers have a more positive perception of school leadership.

The path model also showed a high degree of predictability for student scores on the 2013 English assessments, based on student scores in 2011. Schools where students performed well on the assessment in the first year could anticipate that students would also score well on the assessment in 2013. When taken together, analyzing results of the assessment can help schools determine how they are likely to perform two years later, and know that teacher perceptions of school leadership will be more positive when the student scores are positive.

The finding that student success has a positive impact on teachers' feelings about administration is consistent with teacher retention research. Ladd (2009) found that teachers' perceptions of school leadership, measured through school-level averages of responses to school climate surveys, are most predictive of teachers' intentions to remain in the school or to find alternative jobs. Future research that allows for the investigation of the relationship between student performance and teachers' perceptions of school leadership will contribute to a better understanding of the additional factors influenced by student performance.

The second significant finding is the relationship between teacher perceptions of instructional practices and supports and student achievement. As was the case with school leadership, the data suggests that student success leads to positive perceptions of instructional practices and supports. A key feature in this item is the concept of professional learning communities. When students performed well on the 2011 English

assessment, two years later teachers had positive perceptions about professional practices, which include professional learning communities. The path model established the fact that student scores on the 2011 English assessment were highly correlated with student scores on the 2013 English assessment. It can be inferred through analysis of the model results that instructional practices are positively related to student achievement across time.

While empirical studies of the teaching and learning constructs, as operationalized by the TELL Survey, are very limited, researchers should continue to examine complex models of value-added practices and use available data to make improvements at the school level. The practical significance of this study is that the data supports the fact that sufficient time is an important area of concern for teachers, based on the low overall mean for this construct. County supervisors and central office personnel can look at ways to increase the time available for teachers by analyzing the county data on the time construct. Each school could use the individual school-level data to analyze the specific areas of concern indicated by teachers.

There are several discreet question prompts within the overall construct, and further analysis of each can help a school determine where specifically the concerns are located. Class size may be an issue if teachers have a higher number of students and a higher number of classes to prepare for and manage. Time to collaborate may be compounded by teachers who do not know how to productively participate in collaborative planning. If the concern is with instructional time, schools can review classroom management practices that result in lost time. Reducing school-wide announcements, remedial pullouts, field trips, unplanned meetings, and administrative

paperwork or increasing efficiency of planning lessons can help teachers maximize available time. The data are publically available for researchers and education practitioners to analyze and plan appropriate action as necessitated by the data.

Individual schools should examine their own data in order to make improvements on the teaching and learning constructs because, while this quantitative study did not establish a relationship with student achievement, the bulk of the qualitative literature supports the conceptual framework within the TELL Survey. The path analysis methodology used in this study could be the basis for a deeper study focusing on one of the constructs. Researchers can continue to revise the model until finding the path or paths of best fit. Exploring qualitative data to extend the study into mixed methods may also help illuminate some of the confounding variables that made the current path analyses too simplistic. According to the literature base, the theory underlying this study is accurate; the challenge is to find a more accurate method to measure the constructs, which are large conceptual areas of education research.

Summary

While the TELL Survey constructs of time, teacher leadership, school leadership, professional development, and instructional practices and support in this study did not have a significant relationship with the scores on the English HSA, what this study did establish is that sufficient time, as perceived by teachers, has the lowest percent agreement of all five variables on the TELL Maryland Survey included in this research. Additionally, the study established that student scores on English HSA in 2011 have a strong, positive relationship with student scores on the English HSA in 2013. In all five path analyses, this positive relationship existed above $b = 0.90$. Additionally, the data in

all five path analyses revealed another consistent and positive relationship between each construct in 2011 and the same construct in 2013. The strongest of these relationships was between teacher perceptions of professional development ($b = .80$) in 2011 and 2013 and of instructional practices and support ($b = .89$) in 2011 and 2013.

When students do well on the English HSA, teachers have more positive perceptions of school leadership and instructional practices and support. While the teacher perception data did not separately or in combination illustrate a method to improve student scores, common educational practices and combinations of practices should continue to be studied for their relationship to student achievement. Adding additional direct measures of each individual teaching and learning construct to strengthen the path analysis could provide the quantitative data schools are searching for to identify highly effective, research-based improvement efforts.

Appendix A: Sample Population of Schools by County

Allegany	Allegany High School
	Fort Hill High
	Mountain Ridge High School
Carroll	Century High School
	Liberty High School
	Manchester Valley High School
	North Carroll High School
	South Carroll High School
Charles	Winters Mill High School
	La Plata High School
	Henry E. Lackey High School
	Maurice J Mcdonough High School
	Northpoint High School
Frederick	Thomas Stone High School
	Westlake High School
	Brunswick High School
	Catoctin High School
	Linganore High School
	Oakdale High School
	Urbana High School
Garrett	Walkersville High School
	Northern Garrett High School
	Southern Garrett High School
Washington	Boonsboro High School
	Clear Spring High School
	Hancock Middle Senior High School
	North Hagerstown High School
	Smithburg High School
	South Hagerstown High School
	Williamsport High School
Montgomery	Damascus High School
Howard	Howard High School
	Marriotts Ridge High School
	Reservoir High School

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